THE PRACTITIONER

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THE MONTH

The Symposium

In spite of ten years' frustration the family doctor remains the glory of British medicine. Some of the weaker brethren have fallen by the way and degenerated into mere cyphers for the transmission of patients to hospital, but the vast majority of the general practitioners of the country have struggled, and usually with success, to maintain the high standards of their predecessors. Successive Ministers of Health have done little more than pay lip service to the ideal of the family doctor, but it is not inconceivable that one day it may dawn upon one of the transitory occupants of that office that an efficient general practice service is not only the best, but also the cheapest, basis of a National Health Service.

Meanwhile it is incumbent upon those of us who appreciate the value of the family doctor to do all we can to help him in continuing to care for his patients in their own homes, and it is for this reason that we devote our symposium this month to 'Domiciliary Care'. Priority has naturally been given to domiciliary midwifery because this is the part of his work which the practitioner is in the greatest danger of losing. The greater part of the symposium is devoted to the care of the young and of the crippled and the bedridden patient, as these are the patients for whom the practitioner can do so much, and for whom home care means so much.

Imported Illness

To what extent is the medically uncontrolled entrance of immigrants from British possessions overseas a potential hazard to the health of the United Kingdom? The Aliens Orders do not apply to such immigrants and the majority of them have no medical examination either before they leave their own country or on arrival in Great Britain. There is an increasing volume of evidence that the hazards are not negligible, and the question must arise as to whether the time has not come when action should be taken to ensure that all such immigrants are, at least, free from any infectious disease before they are allowed to intermingle freely with the inhabitants of these Islands.

Two recent reports exemplify the risks of this uncontrolled immigration. G. Z. Brett (*Tubercle*, 1958, **39**, 24) has analysed the 1956 records of the mass radiography service of the North Western Metropolitan Regional Hospital Board. In and around the boroughs of Islington and St. Pancras where Irish, Cypriot, and West Indian immigrants form fairly large communities, he found the incidence of active tuberculosis in men as revealed by mass radiography, to be 5.7 per 1000 for those born in the United

Kingdom, 42 per 1000 for Irish immigrants, 16 per 1000 for Cypriot immigrants and 4 per 1000 for West Indian immigrants. The comparable figures for women were 2.4, 13, 7, and nil. The other report comes from the Metropolitan Water Board which is employing an increasing number of coloured workmen. According to R. D. Maclean (*Med. Offr*, 1958, **99**, 61), examination of stool specimens from the first 21 coloured workmen employed by the Board revealed the presence of parasitic infection in 14. Ascaris ova were found in eight, *Trichuris trichiura* ova in five, ancylostoma ova in six, and *Entamœba histolytica* cysts in one. All these workmen came from the West Indies. None of those examined had any complaints. How many of these worm-infested immigrants are working in catering establishments or food shops? How many of these immigrants with active tuberculosis are coming in contact with children or adolescents? These are the questions to which the nation is entitled to have an answer.

Soviet Medicine

As through a glass, darkly, the Russian medical scene is still vague and blurred. The Iron Curtain, however, is being raised slightly—if ever so slowly—and it is now becoming possible to obtain some idea of conditions of medical practice in the Soviet Union. Mr. Ian Fraser prefaced his account of a visit to the U.S.S.R. (*The Practitioner*, 1957, **178**, 98) with the comment: 'It is often said that to write effectively on Russia one must have lived there for twenty years or visited it for two weeks'. During the last year or so there has been a variety of reports based on the latter experience. What has been sadly lacking has been evidence based upon a long-term study of Soviet practice. Such evidence is still to come, but a recent publication from the Russian Research Center of Harvard University ('Doctor and Patient in Soviet Russia' by Mark G. Field. Harvard University Press, 1957. London: Oxford University Press. Price 40*s*.) is a carefully documented review of the available evidence which goes far towards clarifying the present position.

The picture presented is necessarily a confused one but the predominant impression is that Russian doctors are very like their opposite numbers on the other side of the Iron Curtain and that they are finding it almost as difficult to accept a totalitarian regime in medicine as doctors in this country are finding it difficult to accept State intervention as exemplified in the National Health Service. Direction is strongly resisted if it means practice in distant areas remote from medical centres. Resentment is expressed if the doctor's opinion as to whether a patient is fit to work is questioned on the grounds that the work is more important than the patient. Repeated complaints are made against the system whereby indoctrination in communist theory is an essential part of the medical student's curriculum. Nor have forty years of Soviet control altered human nature. Private practice still exists and those in authority insist upon the same personal attention as their opposite numbers in capitalist countries. Doctors still find means to circumvent the orders of the Ministry and to ensure that their patients are

allowed to rest from work if this is essential for their health. Equally significant are the lessons to be learned of how totalitarianism is the antithesis of medicine as it is known and practised in the West, and how narrow can be the dividing line between the modified form of State medicine as it now exists in Britain and the totalitarian regime of the U.S.S.R.

Toothpaste

THE advent of independent television has brought a new lease of life to the advertisers of toothpaste. They are saying nothing new, but they are repeating the familiar old half-truths in an even more flamboyant manner. Whether the response to their efforts is comparable to that of their opposite numbers in the United States, where the annual sales of toothpaste total $150 million, is not divulged. What is known, however, and what it is time someone brought home to the gullible public, is that there is not a shred of evidence that the increasing use of these much vaunted toothpastes is having any effect upon the incidence of dental disease. It was only last month that a British representative informed a WHO conference of dental officers, held in Brussels, that British industry loses 500,000 working hours every year through toothache.

The facts of the situation, so conveniently overlooked by the advertisers, were admirably brought out in a discussion on the subject at the annual meeting of the British Dental Association (*Brit. dent. J.*, February 4, 1958). The keynote was struck by Geoffrey L. Slack, whose major conclusion in a review of 'the claims of therapeutic dentifrices' was that 'a close examination of the research work which has been reported does not reveal a dentrifrice which will prevent dental disease'. Basically, all toothpastes contain the same ingredients: soap or detergent, a mild abrasive, flavouring, glycerin, water, and a binder to hold the ingredients together. It is well known that the rubbing down of a metal surface with an abrasive or the use of a detergent increases the susceptibility of this surface to rust-attack, and there is evidence to support the suggestion that removing the protective layers of the tooth surface with abrasives and detergents actually increases the susceptibility of these surfaces to acid attack. What matters is the use of the toothbrush, and a good toothbrush and water effectively clean all mouths. These are the hard facts of life so far as dental hygiene is concerned, and it is on these that all teaching must be based until the experts solve the ever-deepening mystery of dental caries.

Birth Stones

PRECIOUS stones have fascinated mankind from the earliest days of civilization. Today they are valued mainly for their intrinsic beauty and monetary value, but in the days of old they vied with the stars as factors controlling the destiny of the wearers. Each known gem had its particular attributes, and each zodiacal division of the year was associated with a given stone. This stone became known as the birthstone of anyone born in this particular period and acquired a legendary

power in endowing the wearer with prescribed virtues and protecting him from the hazards of life. Volumes have been written on this topic, but in a recent issue of the *Nursing Times* (1957, **53**, 1459) M. E. Curran, of the National Jewellers Association, has provided a concise summary which will whet the appetite of anyone who has not previously studied the subject.

He describes the diamond, the birthstone of those born under the sign of Taurus (March 21 to April 20) as 'the loveliest of all'. 'It has the legendary power of protecting the wearer from evil, especially when worn on the left side of the person', and Mr. Curran suggests that 'this may well be the subconscious reason for choosing diamonds for an engagement ring. In India, tiny diamonds are sprinkled over the baby's head at his naming ceremony to endow the child with the attributes of purity and virtue. The first Queen Elizabeth wore a diamond as a guard against infection'. The emerald, the birthstone of those born under Gemini (May 21 to June 20), has always been associated with eyesight, and for long a polished emerald was believed to have the power of restoring failing eyesight. Those born under Virgo (August 22 to September 21) have the peridot, or 'evening emerald' as their birthstone, to which was attributed the power of overcoming mental and physical timidity. The blue sapphire, the birthstone of those born under Libra (September 22 to October 22), and the talisman of St. Andrew, had the double attribute of protecting against poison and conferring wisdom. Even more therapeutic power was attributed to the topaz, the birthstone of those born under Sagittarius (November 22 to December 20), for it warded off insomnia and asthma and, if applied to the nostrils, controlled epistaxis. How much more fascinating was the pharmacopœia of the ancients than its cold scientific successor of this atomic age!

European Medicine

MEDICINE knows no frontiers but, with the steady increase in the number of medical journals, it is becoming increasingly difficult for the doctor in practice to maintain contact with what his colleagues in other countries are doing. In order to provide our readers with such information we are this month initiating a series of articles entitled 'Notes from the Continent'. These are intended to provide a summary of medical progress and practice on the Continent. They are being prepared in conjunction with the Editors of *Bruxelles-Médical* (Belgium), *La Revue du Praticien* (France), *Münchener Medizinische Wochenschrift* (Germany), and *Minerva Medica* (Italy). This month the new feature deals with Germany and Italy. By publishing these 'Notes'—at approximately two-monthly intervals—it is hoped to present a running commentary on the way in which practitioners on the Continent are adjusting themselves to modern medicine and dealing with those problems which are the essence of medical practice, no matter under what national flag it may be carried out.

DOMICILIARY MIDWIFERY

By A. E. de la T. MALLETT, *D.S.C.*, M.D.
Wimborne Minster, Dorset

Domiciliary obstetrics is on the decline and can now be said to be at the cross-roads. Some take the extreme view that it should cease altogether and that all confinements should take place in maternity units attended by doctors with special obstetric experience who may or may not be general practitioners as well. Claye (1955), for instance, has stated:—

'Domiciliary delivery deserves to be as dead as the Dodo, and . . . it is in that desirable condition in two of the more civilized countries of the world . . . In these two regions [New South Wales and New Zealand] confinement in the home has become the rarity it ought to be'.

The difficulty lies in the selection of normal cases for home delivery because a case which may be normal throughout the antenatal period may become abnormal thereafter no matter how carefully selected.

That safe domiciliary delivery of selected cases is possible, however, has been shown by the results obtained in an obstetric survey conducted by the College of General Practitioners (1957) and, indeed, there is much to be said for a confinement in the home. For one reason the patient has the doctor and midwife of her choice and can have her baby in her home surroundings. She is not separated from her family, and the husband does not feel that he is excluded from a momentous family event. Her delivery is of course far less expensive than a hospital delivery. In addition, normal pregnancy and parturition should be considered a physiological process, and, whilst no-one would advocate that major surgery should be performed 'on the kitchen table', there is no reason why a normal labour cannot be satisfactorily conducted in the patient's home. The provision of adequate help in the house is of great importance so that the recently delivered mother is not overwhelmed with domestic anxieties.

Hospital delivery is bound to expose the pregnant woman to added risks of infection. She is usually admitted in labour and perhaps emotionally unsettled. The surroundings are strange, the doctor possibly unknown to her, and with shortage of staff it is inevitable that she may be left for periods alone in the labour ward. In the case of a precipitate labour it may well be that a woman booked for a hospital confinement will, in fact, be confined in her own home.

The criterion for a home confinement should be a *normal delivery*. Is this possible to forecast? By exercising great care during the antenatal period and by transferring potentially unsuitable cases to a specialist hospital it is possible to eliminate many abnormalities. Browne (1957) suggests that, when considering suitability for home confinement, initial assessment of a case might be conducted by a panel consisting of consultant obstetrician, general

practitioner and health visitor or midwife. This arrangement, however, presents practical difficulties.

Of those cases selected for home delivery a small proportion will develop some unforeseen abnormality during or after labour: i.e. inertia, delay in the second stage, or post-partum hæmorrhage. Of those developing complications it is inevitable that a small proportion will have to be dealt with by the practitioner 'on the spot'. In any event, with the present shortage of maternity beds, it is inevitable that domiciliary delivery will continue for an indefinite period. What is important is that, by the selection of cases, the best use should be made of the maternity beds available and that those women booked for home confinement should be as obstetrically normal as it is possible to forecast.

OBSTETRIC EXPECTATIONS IN GENERAL PRACTICE

If practitioners with limited lists are excluded, an average for the remainder would be about 2,500 patients. If the birth rate remains at its present level of 16 per 1000, this would produce 40 babies a year per practitioner, the proportion born in hospital being about 50 per cent. in most districts, but much higher in large towns. The proportion of first births taking place in hospital is higher still, for the primigravida is booked automatically for hospital delivery in some districts. Thus, although first births form 35 to 40 per cent. of the whole, the proportion in domiciliary work is likely to be about 25 per cent., and the average general practitioner will have about five first births and 15 others to supervise in their own homes per annum, or, in a professional lifetime of 40 years, 200 first births and 600 others—a total of 800 births.

Although he must be aware of the possibility of the rarer complications, a sense of proportion should be retained. As Cookson (1954) has pointed out:

> 'The number of years for which the average family doctor would have to practise to see a case among his domiciliary patients is, for prolapsed cord, 10 years; transverse presentation in labour, 10 years; mento-posterior presentation, 40 years; brow presentation, 50 years; hydatidiform mole, 50 years; ruptured uterus, 300 years; inverted uterus, 600 years. Averages cannot be applied to individuals, but they help to keep a sense of proportion. General practice would be impossible if one of the qualifications for it were postgraduate experience of abnormalities unlikely to be encountered in 10 years of practice'.

A general practitioner, in 40 years, could expect one of his pregnant patients to have a positive Wassermann reaction, might see four cases each of prolapsed cord and transverse presentation in labour, and four or five recognizable ectopics, but only one practitioner in 25 would have an ectopic reaching advanced pregnancy. His primigravidæ would present him with an imperative forceps delivery about every two years, and his multiparæ once in seven years. Post-partum hæmorrhage could be expected after two or three of his forceps deliveries, and after about 25 of the remaining deliveries, a manual removal being necessary on eight occasions, but there would be only about eight cases of ante-partum hæmorrhage. If he accepted breech presentations for home delivery there would be between 10 and 30 dependent

upon his success with external version, and of the higher number three or four would probably be lost. If all perineums were examined after labour he would find perineal tears in about 120 primiparæ and 200 multiparæ, an average of one every four weeks. About eight Cæsarean sections would be necessary for various causes, the patients being primigravidæ and multigravidæ in equal proportions. These would, of course, have to be transferred for delivery under hospital conditions as would a number of other patients to a total of about 80—these cases being additional to his total of 800.

SERVICES AVAILABLE TO THE PREGNANT WOMAN

The pregnant woman may select: (1) the general practitioner, (2) the midwife, (3) the local health authority clinic.

She may place herself in a general practitioner's care who may look after her himself or refer her to a specialist, either at her own request, or for obstetric reasons. If at her own request then this will probably have to be as a private patient and the cost often prohibitive. She may select the local midwife, and the general practitioner may only be consulted if an abnormality arises during pregnancy or labour—the so-called 'midwife's case'. As an alternative she can attend the local health authority clinic with the midwife in attendance, and, again, the general practitioner may be called in emergency. Unless the general practitioner is brought in at the outset the position is bound to be unsatisfactory as, in the event of an abnormality developing, he will have to attend in a moment of obstetric crisis a patient whom he has not seen before.

It is essential in future that the functions of the general practitioner, the midwife and the local health authority become closely coordinated. No-one will doubt that excellent work has been done by local health authority clinics, but are they any longer necessary when, at no extra cost, the pregnant woman can consult her doctor?

The solution to this state of affairs may be termed 'the domiciliary obstetric team'. This should consist essentially of the general practitioner and midwife working closely together as partners. Neither can do without the other. The midwife should not resent the doctor's participation or consider it a sign of failure if she has to consult with him, or send for him in an emergency. It is essential that any sense of competition between the practitioner and the midwife should cease. The importance of close cooperation between general practitioner and midwife has been stressed by Hickson (1956).

PLACE OF DELIVERY

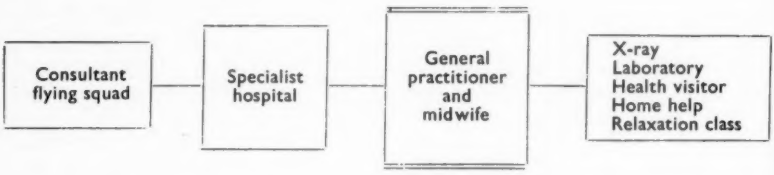
The present possibilities are:—(1) home, (2) general-practitioner hospital, (3) nursing home, (4) specialist hospital.

In many parts of the country there is a great shortage of beds particularly in specialist hospitals. In some areas, for example, mothers expecting a second or subsequent child and whose pregnancies are considered normal

are automatically excluded from admission to a specialist hospital. Even primigravidæ are not automatically accepted.

THE DOMICILIARY OBSTETRIC UNIT

The general practitioner and midwife form the essential centre of what may be called the *domiciliary obstetric team*:—



A general practitioner should set aside a definite time during which he sees expectant mothers by appointment and, if possible, with the midwife concerned. At present it is not unusual for antenatal examinations to be carried out independently by the general practitioner and midwife. This is unsatisfactory, a waste of time and excludes on-the-spot discussion of any abnormalities discovered. The general practitioner should have access to x-ray and laboratory facilities in his own right without having to refer the patient to a consultant. He will also have the valued assistance at the appropriate time of the health visitor and be able to arrange for additional help in the home: e.g. during the puerperium when it is most needed.

Backing the general-practitioner-midwife unit stands the essential specialist hospital with its consultant obstetrician and flying squad. To the former the general practitioner can refer problems discovered during the antenatal period, as well as calling on him for help when unforeseen difficulties arise during labour. An ideal to aim at is for every such specialist hospital to have general-practitioner maternity beds where the general practitioner could still maintain over-all responsibility for his patient under specialist supervision. Distance, of course, may make this impracticable but the possibility should be envisaged. Some general practitioners have access to maternity beds in a general-practitioner hospital or maternity unit with consultant backing. This is probably the ideal arrangement, but they remain a fortunate minority.

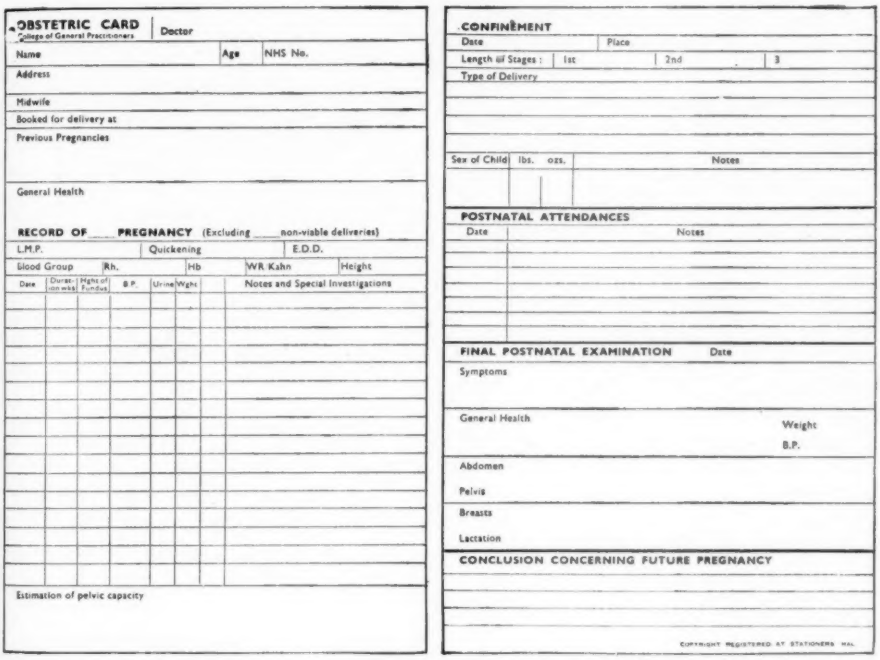
The flying squad may not often be required by the general practitioner but when called upon should be available immediately. For example, a sudden hæmorrhage, ante- or post-partum, the retained placenta with obstetric shock and the asphyxiated child all call for urgent and immediate help.

ANTENATAL CARE

The care of the pregnant woman should be based upon a routine procedure on which is superimposed an overriding clinical assessment. For this reason it is wise to establish a routine which in itself facilitates diagnosis of the case

deviating from 'normal'. With this object in view an obstetric card (fig. 1) was designed during the course of an obstetric survey carried out by the College of General Practitioners (1957). Its size is such that it will fit conveniently into National Health Service envelopes. It is not suggested that the mere completion of such a card will by itself lead to good obstetric practice but, nevertheless, a systematic marshalling of facts must prove beneficial.

The first consultation.—Is the patient suitable for *home* confinement? This is the major decision and the criterion to forecast, if possible, a *normal*


OBSTETRIC CARD
College of General Practitioners
Doctor
Name
Age
NHS No.
Address
Midwife
Booked for delivery at
Previous Pregnancies
General Health
RECORD OF ___ PREGNANCY (Excluding ___ non-viable deliveries)
L.M.P.
Quickening
E.D.D.
Blood Group
Rh.
Hb
WR Kahn
Height
Date
Duration weeks
Height of Fundus
B.P.
Urine
Wght
Notes and Special Investigations
Estimation of pelvic capacity
CONFINEMENT
Date
Place
Length of Stages: 1st 2nd 3
Type of Delivery
Sex of Child
lbs. ozs.
Notes
POSTNATAL ATTENDANCES
Date
Notes
FINAL POSTNATAL EXAMINATION
Date
Symptoms
General Health
Weight
B.P.
Abdomen
Pelvis
Breasts
Lactation
CONCLUSION CONCERNING FUTURE PREGNANCY
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(a) (b)

FIG. 1.—An obstetric card for use in general practice: (a) front, (b) back. (Obtainable from the Secretary, College of General Practitioners, 14 Black Friars Lane, London, E.C.4.)

confinement. Many will consider that all primigravidæ are best confined in hospital. The elderly primigravida, the high parity patient, those with a bad obstetric history—i.e. previous forceps, toxæmia, inertia and post-partum hæmorrhage—may well be advised to have their confinement in hospital and a woman under five feet (150 cm.) in height should also be regarded with some suspicion with regard to eventual disproportion. Even if the decision is made for a hospital confinement it may well be that the general practitioner can retain the antenatal care of his patient.

A routine should be adopted, starting with a general examination of the patient including, some would advocate, a pelvic examination. If doubt exists, an x-ray of the chest should be ordered. Blood should be taken in a plain 'venule' for grouping (including the rhesus factor), Wassermann and Kahn reactions, half the blood being transferred to an oxalate or Wintrobe tube for estimation of hæmoglobin. From those women who prove to be rhesus negative a further sample of venous blood will be required at the 34th week for the detection of antibodies.

FIG. 2.—Venous compression by means of rubber cuff and intestinal clamp.

Intravenous technique.—The need for venepuncture often occurs during pregnancy and parturition, either for obtaining a sample of venous blood or for the administration of drugs such as ergometrine or fluids such as whole blood, plasma or substitute. During the antenatal period compression of the upper arm may be conveniently achieved by use of the inflated sphygmomanometer cuff. 'Milking' the patient's arm from wrist to elbow, and also opening and closing of the hand by the patient, will usually cause suitable venous engorgement. If this fails, 'flicking' the chosen vein directly will often have the desired effect. The actual taking of blood is facilitated by the use of partially evacuated 'venules' supplied for various investigations and obtainable from most laboratories.

There are times, however, during labour and especially during moments of crisis, such as the actual birth of the child, when the application of a sphygmomanometer cuff proves slow and cumbersome. The use is then recommended of a 3-inch (7.5 cm.) wide strip of rubber (such as the inner tube of a bicycle 'opened-up') and a pair of intestinal clamps (fig. 2). The rubber strip can be applied and released with great rapidity.

Place of delivery.—If a home delivery is provisionally decided upon, the address should be noted and also the midwife who will attend.

The obstetric calendar.—The use of an obstetric calendar (fig. 3) is to be recommended. Its particular virtue lies not so much in fixing the E.D.D. (estimated delivery date), but in establishing quickly the length of gestation. A disparity between this figure and the size of the uterus will suggest either multiple pregnancy, hydramnios or 'mistaken dates'. Two columns are

provided in the obstetric card for recording these complementary facts. It is also useful when possible to record the date of quickening, as the E.D.D. is five calendar months ahead.

Urine analysis.—In the first instance the urine should be tested not only for albumin but also for sugar; if a reducing substance is found its nature must be determined. At subsequent examinations the detection of albumin only is required.

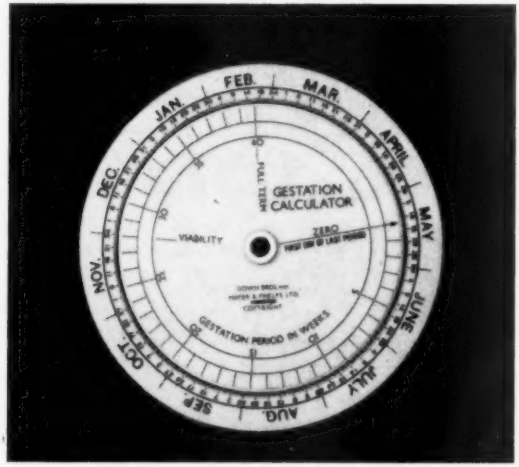

FIG. 3.—The obstetric calendar.

ROUTINE OBSTETRIC CARE

Browne and Browne (1955) state that 'the patient should be seen every month from the time of booking until the 30th week; every fortnight from then till the 36th week, and thereafter every week until delivery. This is the least that can be regarded as adequate'. Such a routine is to be recommended and means that many patients will be seen a dozen times or more antenatally, as opposed to the minimum of two such examinations required by the National Health Service Act.

At every such examination the following should be recorded as a routine: (1) gestation period, (2) height of fundus, (3) blood pressure, (4) examination of urine for albumin, (5) patient's weight in lb. In the detection of toxæmia a record of the weight is helpful, as retention of fluid occurs early. According to Donald (1955), 'the weight gain should not exceed 5 lb. in any one month or 2 lb. in a week, and the total increase in pregnancy should not exceed about 28 lb.'. These are helpful figures when used in conjunction with blood-pressure readings and examination of the urine for albumin, as the early toxæmia may settle with rest, administration of an oral diuretic and a low-sodium diet.

As the pregnancy progresses the fœtal position assumes increasing importance and should also be recorded. Any anæmia detected by an initial blood count will have been treated and the result checked by further hæmoglobin estimations.

Relaxation classes.—At about the 7th month it is helpful if instruction can be given to primigravidæ and selected multiparæ in the physiology of labour.

This is often done at special relaxation classes. There seems no doubt that excellent results are achieved in a proportion of cases.

FINAL ASSESSMENT

This will include pelvic examination at some time after the 36th week, in an attempt to correlate pelvic capacity and the size of the fœtal head. In attempting to forecast the safety of a confinement, so far as the fœtus is concerned, it is helpful to consider the figures obtained in the obstetric survey carried out by the College of General Practitioners (1957) with regard to the stillbirth and neonatal death rate, which together are referred to as the perinatal death rate.

The number of births included in the survey was 4,277. Of these, 790 were delivered in specialist hospitals and the place of delivery was uncertain in 18. The remaining 3,469 were delivered under the care of general practitioners: 1,927 in the mother's home, 1,205 in general-practitioner hospitals, and 337 in nursing homes.

The survey cases include 89 stillbirths, 46 first-week ('obstetric') deaths and 12 second-week to fourth-week deaths: a perinatal death rate of 33.9 per 1000.

In 61 cases, the baby weighed 5½ lb. (2.5 kg.) or less, and was therefore 'premature', the perinatal death rate for all premature babies being 217 per 1000. The perinatal death rate for the remainder, including babies of unknown weight, was 21.1 per 1000.

Survey cases delivered under general practitioner care (from which the more difficult cases had been filtered off and transferred to specialist hospitals) had a perinatal death rate of 23.5 per 1000, with very little difference between home (22.6 per 1000) and general-practitioner hospital (23.8 per 1000) deliveries.

Specialist hospital deliveries (which included a high proportion of abnormals) had a rate of 78.6 per 1000.

An important part of general-practitioner obstetrics is to recognize potentially dangerous abnormalities and to make suitable arrangements. It is usually possible to recognize multiple pregnancy, inevitable breech delivery, hypertension, ante-partum hæmorrhage and the presence of rhesus antibodies. These groups of abnormal cases, together with other patients who went into labour more than four weeks before or two weeks after term, or were not fully dilated after twenty-four hours in labour, included 79 per cent. of the stillbirths and neonatal deaths in the survey. Every practitioner must decide for himself what forseeable complications he is prepared to undertake.

A 'normal' confinement, however, must remain the ideal in domiciliary obstetrics, and the occurrence of multiple pregnancy, unavoidable breech delivery, toxæmia, ante-partum hæmorrhage, the occurrence of rhesus antibodies, the onset of labour more than four weeks before term, postmaturity of over one week and a first stage of labour of over twenty-four hours should all lead to the consideration of transferring the patient to hospital.

THE CONFINEMENT

Normal labour.—The general practitioner will arrange in advance with the midwife whether he wishes to attend a confinement or only to be called in an emergency, but in any event he should be informed when the patient is in

labour. He can then leave instructions where he is to be found and, even if the management of the confinement and delivery remain the midwife's responsibility, he may well wish to visit the patient during the course of her labour.

Abnormal labour.—It is evident that while in labour some patients will develop abnormalities, such as inertia or ante-partum hæmorrhage, requiring transfer to hospital. Other abnormalities may have to be managed in the home either because there is no time to effect a transfer or because the distance involved is too great.

FORCEPS DELIVERY

It is useful to be able to predict the probability of a forceps delivery either before the onset of labour or during the first stage.

In the College of General Practitioners' obstetric survey, 189 forceps deliveries were undertaken by general practitioners, a rate of 5 per cent. Of these, 138 were primigravidæ (rate 12 per cent.) and 51 multiparæ (rate 2 per cent.). Primigravidæ requiring forceps delivery most frequently were: over 30 years (rate 26 per cent.). 1st stage over 24 hours (rate 27 per cent.), one week overdue (rate 19 per cent.). Patients in one or more of these classes represented 54 per cent. of primiparous forceps cases.

The rates for multiparæ were: 3.9 per cent. for those who were para 5 plus, and 7 per cent. for those in whom the 1st stage exceeded 24 hours.

If primiparæ are to be booked for home confinement then a small number of forceps cases is inevitable. On the other hand, forceps delivery is not predictable in multiparæ but the number of such cases is very small indeed.

Anæsthesia in forceps delivery.—Chloroform either alone or in combination is commonly used but there must always remain the risk of the inhalation of vomitus in a previously unprepared patient. Gate and Dutton (1955) advise the use of local anæsthesia:

'It is generally agreed that, except where transfer of the patient to hospital is contraindicated, nothing more extensive than a low forceps delivery should be contemplated in the patient's home; and local analgesia should therefore be almost universally applicable in these circumstances'.

POST-PARTUM HÆMORRHAGE, MANUAL REMOVAL, AND ERGOMETRINE

By definition an abnormal third stage includes one or more of the following criteria: (1) duration of one hour or more, (2) post-partum hæmorrhage, (3) manual removal of placenta. In the College of General Practitioners' obstetric survey, 3,469 cases were delivered under the care of general practitioners and the incidence of third-stage abnormality is shown in table 1.

As can be seen, little help is given in forecasting an abnormal third stage apart from the figures relating to forceps deliveries both for primiparæ and multiparæ. Here, however, it is clear that the additional risk of abnormality, particularly post-partum hæmorrhage or manual removal, is very real and any prophylactic measure is to be welcomed.

Ergometrine after forceps.—The use of ergometrine given at the end of the

	Abnormality per cent.	Post-partum hæmorrhage per cent.	Manual removal per cent.
Primiparæ (forceps)	15.9	10.1	6.5
Multiparæ (forceps)	27.4	19.6	15.6
Primiparæ excluding forceps	6.8	4.2	0.9
Multiparæ excluding forceps			
para 1, 2 and 3	4.8	3.1	0.9
para 4 or more	4.4	2.4	0.4

TABLE I.—Incidence of third-stage abnormality in 3,469 deliveries conducted by general practitioners.

second stage is to be encouraged. This should preferably be given intravenously but, as an alternative, can be given intramuscularly combined with 'hyalase'. The fear that this will lead to placental retention is not substantiated. Lister (1950) gave 1 mg. of ergometrine intravenously at the end of the second stage to a series of patients delivered in hospital with forceps. The post-partum hæmorrhage rate was reduced from 16 per cent. to 0.4 per cent. and the manual removal rate from 2.2 per cent. to 1.6 per cent.

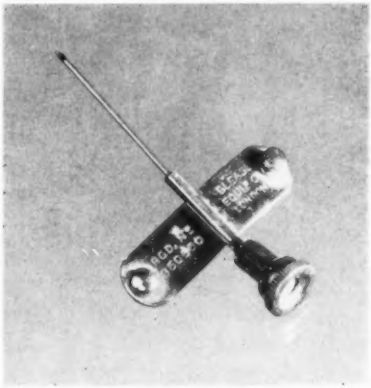

FIG. 4.—Gordh needle.

In the College of General Practitioners' obstetric survey, of the 189 forceps cases undertaken by general practitioners, only 22 were given ergometrine at the end of the second stage. When ergometrine was not used at the end of the second stage there were 23 post-partum hæmorrhages in 167 cases (13 per cent.) and manual removal occurred on 14 occasions (8 per cent.).

Difficulty may arise in the actual giving of intravenous injections in domiciliary practice at the moment of birth. The use is suggested of a Gordh needle (fig. 4). This, in fact, is a hypodermic needle, the shoulder of which consists of a rubber diaphragm. The needle can be introduced at a preselected moment into a vein, strapped in position, and the injection given at the appropriate moment through the rubber diaphragm. Care should be taken to immobilize the injection site if this is near a joint, as its movement with the needle *in situ* may cause the vein to be torn. Aspiration of blood through the needle should also be avoided as this will lead to obstruction of its lumen by blood clot.

Ergometrine after spontaneous delivery.—As a prophylactic measure against post-partum hæmorrhage Martin and Dumoulin (1953) gave 0.5 mg. of ergometrine intravenously when the head crowned in 1000 cases, and

reduced the post-partum hæmorrhage rate from 13.1 per cent. to 1.2 per cent., compared with a similar series of controls. The manual removal rate, however, was increased from 1.1 per cent. to 3 per cent.

When post-partum hæmorrhage has actually occurred ergometrine should be given at once, intravenously if possible and regardless of the position of the placenta.

SUMMARY

The view is expressed that selective domiciliary obstetrics has a part to play in the maternity services of the country.

The rarity of various abnormalities likely to be seen by the 'average' general practitioner is discussed.

Emphasis is laid upon antenatal care and that cases booked for home delivery should be carefully selected, the aim being a normal confinement.

The need for cooperation between general practitioners and midwives is stressed.

The services available to the pregnant woman are outlined and the conception of the 'domiciliary obstetric unit' is put forward.

A routine is suggested on which antenatal care may be based and some aspects of intravenous technique are briefly described.

Some common complications associated with perinatal mortality are considered.

The prophylaxis and treatment of post-partum hæmorrhage with ergometrine is described and briefly related to manual removal.

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CARE OF THE BEDRIDDEN PATIENT

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Despite the increasing number of hospital beds available for chronic cases, many family doctors have between five and ten bedridden old people, as well as perhaps one or two younger people, under their care at any one time. The majority of bedridden patients have had strokes, are in congestive cardiac failure, or are dying of carcinoma, whilst rheumatoid arthritis, chronic pulmonary disease and organic nervous disease provide their quota of helpless human beings, whose health and happiness are affected to a large extent by the interest and care of their family doctor. The supposedly difficult patient should be regarded as a challenge to the art of general practice.

THE DANGERS OF BED REST

Early ambulation, if this is possible, and the prevention of physical and mental stagnation if it is not, must be kept constantly in mind. Asher (1947) has painted a memorable picture of the evils of prolonged rest in bed:—

> 'Look at a patient lying long in bed. What a pathetic picture he makes! The blood clotting in his veins, the lime draining from his bones, the scybala stacking up in his colon, the flesh rotting from his seat, the urine leaking from his distended bladder and the spirit evaporating from his soul'.

SOCIAL AND NURSING CARE

The general practitioner, as head of the team, is responsible for mobilizing all available resources as quickly as possible.

The district nurse will arrange for regular blanket baths and will attend to the nursing care of bowels, bladder and bedsores. She also assists in the regular moving of the helpless patient which is so essential in the prevention of hypostatic pneumonia and venous thrombosis. For those who can afford the initial outlay, there are mechanical contrivances on the market, with the aid of which one adult can lift a heavy patient clear of the bed with ease. Makeshift aids to home nursing can easily be improvised in most homes.

A small chair upside down beneath the mattress produces an incline against which the patient can be propped comfortably with only a few pillows.

A pillow or cushion placed against a small drawer inside the bed at the foot can be used as a foot-rest to prevent a semi-recumbent patient from slipping down the bed and at the same time helps to prevent foot drop.

Helpless patients on prolonged bed rest need a cradle over the feet to keep the weight of the bedclothes off them. Two half-hoops of wood joined by wooden slats make an efficient cradle; a temporary alternative is to put a small cardboard box on either side of the feet under the bedclothes.

A board between kitchen chairs on either side of the bed forms a useful bed-table.

Special equipment such as commodes, bedpans, bottles, air rings and rubber sheeting, which cannot be provided by the district nurse, can usually be hired or borrowed from the local branch of the British Red Cross Society.

The home help, for whom the patient or relatives must pay up to 4*s*. an hour (or a proportion thereof, according to means), will do the housework, cooking and anything else that a relative would normally do.

A *night attendant* can be obtained in some areas, and for a small fee will provide company and unskilled assistance for ten or twelve hours overnight.

The Women's Voluntary Service provides meals in some areas, and will usually arrange to visit patients who have few contacts.

An *occupational therapist* employed by the local authority can teach patients handicrafts and bring any necessary materials.

Dental surgeons and *opticians* visit the home under the National Health Service but the latter are allowed to charge the patient for time spent in travelling.

The health visitor, a trained nurse who is often already aware of the social problems involved in the family concerned, can advise on most of the above services and set many of them in motion.

An endeavour must be made to create an interest in something or somebody for every patient who is not desperately ill. Those who are unable or unwilling to use their hands in some form of hobby can be advised in their reading, and all can be encouraged to take an interest in what goes on in other parts of the house or in the garden.

DIET IN CHRONIC ILLNESS

Up to 2000 calories a day may be needed to maintain nutrition and the diet must be *high in proteins* to prevent excessive muscle wasting, osteoporosis and nutritional bedsores; *low in fats*, as fats tend to diminish appetite, and *adequate in vitamin and iron content*. Supplements of vitamins and iron may be necessary, as low levels can easily occur on an invalid diet.

Relatives may have to be prevailed upon to serve small quantities of light pleasantly arranged food rather than large helpings of meat and vegetables. Milk, eggs, cheese, fish and fruit provide vitamins and proteins, whilst a high iron content occurs in liver, peas, beans and cocoa. For a patient who has difficulty in taking solids, egg in milk, sugar, and fruit juice form a complete diet: 4 eggs, 4 pints (3½ litres) of milk and 4 ounces (113.5 g.) of sugar daily provide 2000 calories. If eggs are difficult to assimilate, 'casilan', a powder containing 90 per cent. of protein, can be added to beverages. 'Complan', also in powder form, provides a complete diet and mixed with water forms quite a pleasant sweetish drink: 1 lb. (0.45 kg.) provides 2000 calories.

Most of the foods mentioned are expensive, but for patients receiving national assistance benefit a certificate to the effect that certain foods are necessary can lead to an extra cash allowance.

THE CARE OF JOINTS AND MUSCLES

Lack of movement during prolonged bed rest may lead to fixed flexion deformities of the arm and leg joints; if the patient is lying on his back the weight of bedclothes on the feet can lead to foot drop; prolonged forward

flexion of the neck in old people can lead to osteoarthritis; prolonged general immobilization can lead to osteoporosis. Active movements should therefore be encouraged and in helpless patients each joint should be put through its full range of movement at least once a day. A piece of rope fastened to an overhead support will enable those with good arm movements to move themselves about in bed. Gentle centripetal massage of a limb which cannot be moved assists in improving circulation and reducing any œdema present.

THE CARE OF THE SKIN

This resolves itself mainly into the prevention of bedsores.

Pressure sores occur especially over bony prominences and can usually be prevented by good nursing care, including frequent changes of position, prompt removal of wet sheets and local treatment to pressure points. The hospital routine of daily washing with soap and water followed by the application of spirit and dusting powder is being replaced by the use of barrier creams containing silicones (Bateman, 1956). Sore backs treated in the home by twice-daily smearing of the skin with these creams and infrequent washing with soap and water usually improve and rarely proceed to pressure sores (Roberts and Williams, 1957). The sacrum can be protected from pressure by an air ring, and the heels by rings of cotton-wool. When they occur, pressure sores are usually superficial and the surrounding skin is healthy. Superficial sores can be treated by 1 per cent. gentian violet (Exton-Smith, 1955) or zinc and castor oil cream (ointment of zinc oxide and castor oil B.P.), whilst the deeper ones can be cleaned with 1 per cent. cetrimide and a non-antibiotic antiseptic cream such as 'brulidine' applied. The surrounding skin can be protected by a silicone cream or Lassar's paste.

Nutritional sores are due mainly to hypoproteinæmia and are often associated with generalized muscular atrophy and a sudden worsening of the patient's condition: they commonly presage death. They usually appear suddenly and may extend rapidly in surface area and depth. Apart from local treatment a high-protein diet is obligatory.

THE CARE OF THE BOWELS

Constipation is usual on prolonged bed rest, and the routine use of a mild laxative may be necessary. Two to four tablets of the standardized senna extract 'senokot' is suitable. Codeine is constipating to many people even in the small amounts present in codeine compound tablets and linctus codeine, and alternatives such as 'paynocil' tablets or 'pholcodine linctus' should be used. Fear of the bedpan may aid in the neglect of the call to stool, and, as it has been shown that the use of a bedside commode involves less expenditure of energy than the bedpan, it is high time that the bedpan was dropped from routine use for defæcation. If it must be used, the patient can often pass his motion with less effort if his legs are swung over the edge of the bed and his feet placed on a small stool by the side of the bed.

Fæcal incontinence is usually due to fæcal impaction with spurious diarrhœa, and a rectal examination should always be made. If a large fæcal

mass fills the rectum, purgatives are useless and after the mass has been broken up by the finger, it will have to be removed by enema or a small spoon.

THE CARE OF THE BLADDER

Bottles for men and bedpans for women should be freely available. An old sock around the former will prevent it from being too cold when used in bed.

Urinary infection should be treated immediately and thoroughly with forced fluids, sulphamethazine and alkalis, as it can easily lead to retention, especially in men, when associated with prostatic hypertrophy. If symptoms of infection persist or recur, a midstream specimen of urine should be sent for bacteriological examination and sensitivity tests, and a search should be made for predisposing factors.

Urinary incontinence will be dealt with briefly, as it is the subject of a separate article in this symposium. It may occur in any acute illness in elderly people, especially if there is much toxæmia or cerebral anoxia. An existing tendency to incontinence due to infection or cerebral arteriosclerosis may be exacerbated by psychological factors such as loss of confidence or self-respect, and the desire for attention. In management therefore, general encouragement and the stressing of successes rather than failures are important. If incontinence appears to be a permanent factor, a man can keep a glass urinal in place during the whole of the day, whilst women can wear some sort of pad attached to a sanitary belt. Maternity sanitary pads are best but expensive, and a piece of cellulose wadding covered by a piece of old sheeting is a suitable alternative. A piece of plastic or rubber sheeting, 4 inches (10 cm.) wide, can be placed outside for added protection.

THE TREATMENT OF RESTLESSNESS AND INSOMNIA

Restlessness, especially at night, is common in old people who are ill, and is often associated with clouding of consciousness and thence incoherence, disorientation, and sometimes noisiness and violence. It is important to try and find the underlying cause: e.g. bodily discomfort, cerebral anoxia, cerebrovascular disturbance, or toxæmia.

Bodily discomfort is usually only a contributory factor, but can be important. Thirst, overheating and a full bowel or bladder can all increase a tendency to restlessness.

Cerebral anoxia is common in cardiac or respiratory failure, or in acute chest infections, especially if associated with bronchial spasm, and may indicate the need for oxygen.

Cerebrovascular disturbances, if due to cerebral arteriosclerosis or an obvious stroke, are unlikely to be missed, but Alvarez (1951, 1955) has emphasized that the sudden onset of restlessness, in the absence of any other cause and without physical signs, is often due to a minor stroke.

Toxæmia associated with any infection, acute or chronic, may produce restlessness. Uræmia and jaundice also commonly lead to cerebral symptoms.

Sedatives are necessary in most cases, even when the underlying cause

has been dealt with. Some old people who are mildly restless, partly due to sleeping during the day, may require at night merely the short-acting methylpentynol in a dose of 500 to 1000 mg. (2 to 4 capsules). Another safe non-barbiturate is 'doriden', two tablets of which are roughly equivalent to 1½ grains (100 mg.) of quinalbarbitone; an allergic rash is occasionally encountered. If something stronger is needed, chloral hydrate takes a lot of beating; 20 grains (1.3 g.) in orange juice, or as 120 minims (8 ml.) of syrup of chloral B.P.C., and this dose can be doubled if necessary. If pain is associated, 10 to 40 minims (0.6 to 2.6 ml.) of 'nepenthe' can be added without patients who have access to their prescriptions knowing that morphine has been included. The barbiturates are not as safe a standby in old people as in younger ones. All sedatives, and particularly the barbiturates, can indeed produce restlessness, especially if unrelieved pain is present. Adequate pain relief is therefore of the utmost importance. If there is real difficulty in procuring rest at night a subcutaneous injection of morphine, ¼ grain (16 mg.), and hyoscine, 1/100 grain (0.6 mg.), may be necessary, and this combination rarely fails to give six to eight hours' sleep in a patient who has not had the drugs before. A patient whose restlessness is not easily controlled runs a great risk of falling out of bed at night. Unless there is a constant night attendant therefore the bed should be placed against the wall with a heavy article of furniture such as a chest of drawers along the outer side. For agitation and confusion during the day Exton-Smith (1957) advises chlorpromazine in a dose of 25 to 50 mg. three times daily. Removal to hospital will be required if there is difficulty in securing an adequate fluid intake or if the patient remains noisy or violent.

THE TREATMENT OF DEPRESSION

Many of these patients are suffering from depressing illnesses, but it is surprising how few are depressed to a pathological degree if they are well cared for. When real depression exists, an amphetamine derivative is usually helpful, coupled with amylobarbitone or phenobarbitone if there is an element of nervous tension. Chlorpromazine is of use, especially if intractable pain is present.

SUMMARY

Care by the family doctor can produce mental and physical relief in great measure for those who are obliged to remain in bed for many weeks or years. Many of them learn to live happily in their enforced idleness, and their attitude of calm and cheerful acceptance of physical disaster may well have an uplifting effect on those who care for and visit them.

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THE INCONTINENT PATIENT

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ALTHOUGH incontinence may be urinary or fæcal, the former is by far the more common in ordinary practice.

ABNORMALITIES OF MICTURITION

Control of the act of micturition depends upon integrity of the nervous system. The motor function of the bladder is controlled from the lower segments of the spinal cord, and the impulse calling for action is supplied by the brain in response to a stimulus conveyed by sensory nerve fibres from the bladder.

There are two relevant centres in the lower spinal segment at the level of the third sacral nerve, both responding to the same stimulus. One activates contraction of the detrusor muscle of the bladder and the other inhibits the tonic contraction of the sphincter muscles. If the nerves supplying the detrusor muscle or its spinal centre be paralysed, retention of urine occurs and the patient can only evacuate the bladder by pressure on the abdominal wall. If the sphincter nerve supply is affected, the muscle becomes relaxed and urine dribbles away. In some cases, only part of the motor tract is affected, so that the power of the bladder is not abolished but diminished, and a portion of urine remains in the bladder after micturition—this is seen in compression of the spinal cord by fracture of the vertebræ, hæmorrhage into the membranes, myelitis and the paraplegia of tabes dorsalis.

Abnormalities of micturition thus depend partly upon lesions of some part of the urinary apparatus and partly on changes in the nervous mechanism controlling the act. There may be true incontinence, with which we are dealing, or false incontinence, manifested in overflow from an overdistended, unrelieved bladder, as sometimes occurs with an enlarged prostate or other mechanical impediment at the neck of the bladder.

In all bilateral lesions of the spinal cord, there is interference with sphincter control, resulting in precipitancy, incontinence or retention of urine. The commonest causes are the later stages of disseminated sclerosis, Friedreich's ataxia, tabes dorsalis, compression of the spinal cord by tumour or fracture, amyotrophic lateral sclerosis, encephalitis lethargica, Parkinson's disease, meningitis, syringomyelia or trauma. In the early stages of these diseases incontinence is rare.

Temporary incontinence occurs during major epileptic attacks and with the retroverted gravid uterus, or may be due to congenital abnormality such as spina bifida or hypospadias.

Finally, it can occur in old people from loss of tone or inability to coordinate sensory and motor stimuli. Incontinence as a result of stress does not concern us here, except to remark that it often occurs in women with vaginal prolapse and that the treatment is surgical.

MANAGEMENT OF URINARY INCONTINENCE

Incontinence in nervous disease is usually gradual in onset. The patient first notices frequency and urgency and there is an occasional 'accident' in the bed at night. As the 'accidents' become more frequent, the patient becomes worried and distressed. Sometimes he makes a voluntary reduction in his fluid intake, perhaps to an excessive degree. This is unnecessary as, unless intake is greatly above normal, it makes little difference to the amount of incontinence. At this stage the practitioner is justified in sacrificing honesty to charity. The patient's anxiety and consequent concentration on his bladder aggravate the symptom. Strong reassurance that the condition is temporary can give some mental relief and the provision of a commode beside the bed is a physical comfort and a moral support. Ephedrine, ½ grain (30 mg.) given on retiring and repeated during the night if necessary, does help towards temporary alleviation, for a period which may extend to several years.

Early incontinence is almost always nocturnal, partly because the patient can more easily relieve his bladder during the day, and partly because he is able more readily to control a treacherous sphincter when awake than when relaxed in sleep. Curiously, even the most fastidious patients, after an initial period of emotional distress and anxiety at being incontinent, become quite used to the idea and can discuss their own trouble with detachment. This small blessing is usually bestowed in about two years and is assisted by the fact that in many nervous diseases the skin of the buttocks and vulva becomes anæsthetic.

For partially incontinent and ambulatory women, loosely swathed towels inside rubber knickers are more satisfactory than portable urinals. Sanitary pads are not normally used as they are inclined to chafe and are an expensive item.

If the neck of the bladder is deficient in tone but not completely flaccid, Foley's catheters are useful. The spigot end is attached to the thigh by 'elastoplast' to ensure correct tension. The bladder is left to fill for the longest period tolerable to the patient. In practice it will be emptied every two to three hours. When using these catheters, the bladder must be washed out daily and the catheter changed fortnightly. Unfortunately they are only of temporary benefit to a chronic incontinent, as constant catheterization in a sphincter with poor tone tends to stretch it, and larger and larger sizes are required, until the maximum size 28 is reached. The patient who has outgrown the largest catheter has a further reprieve if a surgeon can be persuaded to scarify the neck of the bladder, thus causing cicatrization and

diminution of the size of the opening. It is then possible to start again with a smaller catheter and work up.

The patient who has outgrown the largest catheter must now be regarded as fully incontinent. The use of ordinary indwelling catheters constantly draining is not to be encouraged as it so often leads to ascending infection. For the male patient portable rubber urinals are more successful, preferably those with an upper apron or flange at the inlet as the penis shrinks upwards in nervous disease and is difficult to contain in the apparatus.

Cunningham's penile clamps, as used by urologists after prostatectomy, are not successful for the chronic incontinent. They are uncomfortable and patients will not tolerate them indefinitely. After a urological operation, a man knows that there is a term to his discomfort and so can the better endure it. Further, the disease causing incontinence nearly always results in impotence, with consequent shrinking of the penis, sometimes to such an extent that one patient of mine, when supplied with a clamp, rejected it, stating with some force that he refused to wear a clamp on his scrotum.

CARE OF THE SKIN

In complete incontinence the care of the skin is supremely important. Complete incontinence is no indication for confinement to bed. Changing and attention can be organized as easily for the walking or wheelchair patient as for the bedfast. Whether confined to bed or ambulatory, patients should be nursed at night on a rubber sheet covered with a draw-sheet, and with the lower part of the trunk wrapped in a draw-sheet with a loose fold between the legs. Cotton-wool padding is ideal but becomes expensive. Draw-sheets are washable and quite satisfactory. They are changed after each meal and once or twice during the night. In practice it works out at about every four hours. At each changing the skin is washed with soap and water, rinsed with clear water, well dried and creamed. The form of cream varies according to the preference of the individual nurse. I favour the use of a barrier cream, lavishly applied, whilst in some of my wards ointment of zinc oxide and castor oil B.P., with a few drops of compound tincture of benzoin B.P., appears equally successful. Whatever application is made, it should be well rubbed in, as massage is an important aid in maintaining good circulation. The use of spirit is not advised. It roughens the skin, thus encouraging chafing, and gives no protection.

Some patients sit and sleep happily on rubber bedpans. If these are used the rim must be dried and powdered as the skin does not slide as easily on rubber as on china or enamel. Constant sitting on a rubber bedpan, however, is a bad thing. The constant pressure of the rim damages the skin and the patient is usually found sitting in a puddle of urine. Further, a patient in a wheel-chair, wedded to a rubber bedpan, requires a much larger size in chairs, which increases the difficulty of manœuvring and sometimes makes it impossible to pass through the doors of an average house. If he insists on

using a rubber pan, however, the kind with an inflatable rubber rim is preferable.

TREATMENT OF PRESSURE SORES

When *superficial abrasions* of the skin occur, they can be protected from further trauma by spraying with several coats of 'nobecutane' until healing occurs. The patient should meantime be nursed in a position avoiding pressure on the affected part and this usually means on the side. This is not always as easy as it sounds, for many have deformities or contractures of the limbs, and most resent lying in an unusual position. As the buttocks are commonly anæsthetic in nervous disease, the patient feels no pain and will often try to wriggle on to his back, causing further damage.

All progress in disease means a deterioration of the patient, and to assist in skin healing the best possible standard of general health must be maintained. When pressure sores appear it often helps to add extra vitamins, especially ascorbic acid, to the fullest available diet. Local treatment to raw places provides the practitioner with a wide choice. I regard two points as essential:—

(1) 'Elastoplast' or strapping should not be used to fix a dressing to pressure areas. The skin under strapping becomes softened and does not tolerate adhesives which must be changed frequently. The dressings on lint or gauze are best kept in position by pinning the enveloping draw-sheet firmly around the lower trunk.

(2) The form of application used should be varied every three or four days if healing does not occur.

Superficial sores will often heal if no longer subjected to pressure, and allowed exposure to the air or sunlight; or they can be painted with gentian violet, acriflavine or zinc sulphate lotion B.P.C. before airing. In our cases thick layers of ointment of zinc oxide and castor oil B.P. are often applied, and Ward, Blenkinsop are preparing to market a cream containing 'penotrane', dienœstrol and silicone which I have used with considerable success.

Deeper pressure sores require packing with saline or eusol gauze, any slough being removed by one of the trypsin preparations. The edges of the crater should be kept creamed or oiled. Crude cod-liver oil is also useful, but has a very pervasive smell. A useful lanoline bedsore cream contains:—

Soft soap B.P.	4	per cent.
Hydrous wool fat B.P.	32	,, ,,
Glycerin B.P.	32	,, ,,
Sodium alginate B.P.C.	2.5	,, ,,
Water	29.5	,, ,,

Purulent wounds can be packed with penicillin gauze or dusted with sulphanilamide powder but these should not be used for longer than a week at a time as the causative organisms become resistant. Systemic antibiotics may be required in addition.

It cannot be too strongly emphasized that, as variety is the spice of life, so is it also a necessity in the treatment of bedsores. The skin of the chronically ill, incontinent patient appears to respond up to a point to almost any form of dressing—then the rate of healing slows and stops, and a change is indicated. I find that alternating gentian violet, 'bedsore cream' (Ward, Blenkinsop), zinc sulphate lotion B.P.C., ointment of zinc oxide and castor oil B.P., in any order, using each for three days and repeating the cycle indefinitely, gives the best results.

While treating broken areas, the surrounding whole skin should still be protected with the barrier of choice—barrier cream, ointment of zinc oxide and castor oil B.P. or 'nobecutane'—and all dressings must be renewed as often as the draw-sheets are changed.

FÆCAL INCONTINENCE

Incontinence of fæces usually occurs coincidently with incontinence of urine and the general care of patient and skin is the same. Some regulation of the bowel action, however, is often possible.

With a patient whose normal evacuation has always occurred at regular times, a 'lift' or bedpanning at the usual time will usually prevent soiled dressings. With a patient who has always required daily aperients, these can be withheld for a week, then a good dose is given overnight and the patient remains in bed the next day for frequent changing and attention, and is then left 'constipated' for another week. Few patients have constant evacuation of fæces, and in these the motion can be consolidated and made more manageable by the administration of kaolin.

The incontinent patient should be nursed in a well-ventilated room with, if possible, a through current of air. An 'airwick' is often helpful. In my experience the administration of chlorophyll tablets or the use of deodorant powder has not proved efficacious, but they may have a use in persuading the attendants and family that 'everything is being done'.

CONCLUSION

Finally, if the patient is being nursed at home, a little encouragement, some congratulation on the state of the skin and recognition of the burden of regular care and incessant laundering, can boost the morale of the other members of the family and make their lot a little easier.

THE PYREXIAL CHILD

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Possibly no manifestation of illness causes so much parental concern as fever in a child. The mother who cheerfully poultices a boil will regard a rise of temperature—the natural response to inflammation—with profound suspicion. The care of the pyrexial child must begin with alleviation of the parents' anxieties and this in its turn requires a diagnosis or at least an explanation of the illness. What is too often forgotten is that many children recover from feverish illnesses that cannot be diagnosed—even in hospital practice with the full resources of ancillary aids to diagnosis. The differential diagnosis of this type of case contains certain pitfalls which deserve mention.

DIAGNOSTIC DIFFICULTIES

In the *first year of life* acute pyelitis, otitis media, and exanthema subitum often cause high fever with few symptoms or helpful signs; in infancy artificial hyperpyrexia is not uncommon. In babies, urinary-tract infections are by no means chiefly confined to girls; a catheter specimen of urine is not necessary, a clean specimen examined under the microscope showing many pus cells per field suffices to establish the diagnosis. Tonsillitis in infancy seems rare but otitis media is not uncommon although it may be difficult to make the diagnosis before perforation occurs; the small size of the canal, the obliquity of the drum head, and light reflected from hairs in the canal obscure one's vision. Suspicion of otitis media may be considered indication enough to give penicillin (phenoxymethylpenicillin, 60 mg. four-hourly in the feeds). Penicillin should not be given when there are grounds for suspecting meningitis; a tense fontanelle and a cerebral cry may precede a stiff neck. The insidious onset and relative frequency of tuberculous and influenzal meningitis at this age and the far from typical presentation of some cases of pneumococcal and meningococcal meningitis in infancy should make one hesitate to speak of meningism in a baby till lumbar puncture has excluded meningitis.

Among the infants with high fever persisting for a few days, who show no other signs of illness apart from fretfulness, are those who have roseola infantum (exanthema subitum). The short-lived morbilliform rash accompanying defervescence provides the clue—a clue that may be missed as penicillin is often given to such infants and is sometimes blamed for the rash and credited with the 'cure'. Few feverish children cause more anxiety, for the height of the fever is apt to disconcert doctor and parents alike, yet no better example could be chosen of the advantages of domiciliary care for the pyrexial child than this essentially benign condition.

New-born and premature infants are particularly prone to artificial hyperpyrexia from over-enthusiastic measures to keep them warm; fever with a rapid respiration rate and tachycardia from this cause seem much more common than so-called 'inanition fever'. If fluids and antibiotics are given and a change of environment is made simultaneously the essential nature of the condition may not be appreciated: sometimes observation alone, for a few hours, of the effects of cooling may be justified.

In a children's ward, among the *toddlers* the prodromal fever of the first case of measles presents a perennial problem: the coryza, cough and conjunctivitis may be too slight to attract attention and no signs can be discovered to account for the rising temperature. Lucky the general practitioner who knows of other cases or who is not consulted till the Koplik spots are present: he can promise measles in a day or so and leave that household content to let the fever run its course.

In the pre-school years, tonsillitis is a common cause of unexplained fever. Under five or six years of age, even severe tonsillitis seems to cause little or no discomfort on swallowing; high fever with fairly consistent complaints of central abdominal pain accompanied often by vomiting and sometimes by headache demands a good view of the fauces. Firm handling will usually be needed and a strong spatula. The mother will need both her hands to control the child's hands and feet, and the doctor will need one hand to hold the head still. As there is often no room to use a torch, the examination is best made under an overhead light or near the window. This procedure is best left till the end of the physical examination. Children seem very tolerant of such firm handling if warned first of what is to be done, and if what must be done be done quickly and efficiently. Failure of the temperature to respond to sulphonamides or penicillin does not discount the diagnosis of acute tonsillitis when that diagnosis is based on a good view and a characteristic appearance, but it does suggest that a virus rather than a streptococcus or pneumococcus is the cause.

Peculiar to children in their *school years*, though by no means confined to this age range, are fevers of emotional or functional origin. The adjective 'highly strung' has suffered such inflation in recent years that one hesitates to use it and yet a child of this type will be recognized as one who often develops fever as the result of emotional tension. Some such children sometimes show a regular temperature of 99° F. (37.2° C.) or so in the evenings for weeks on end. More phlegmatic children, too, may 'run a temperature' on the eve of a birthday or on the last day of the holidays. A normal blood sedimentation rate may rarely be misleading but in the main this is a valuable means of distinguishing between emotional fever and cryptic infection.

So far we have discussed some of the pyrexias of uncertain origin that are peculiar to children. There are other causes not confined to this age range and which deserve to be considered in any child whose fever continues for more than a few days and who looks more ill than the degree of fever readily

explains. Tuberculosis, septicæmia, and brucellosis are classical examples; cat-scratch and rat-bite fevers deserve special mention lest the possibility be overlooked. It is also apt to be forgotten that there is a steady incidence of malignant disease throughout the years of childhood (Wilms's tumour, neuroblastoma, leukæmia and lymphosarcoma, to name four common examples); at this age, as at any other, fever may be the presenting sign of neoplasm.

ANCILLARY INVESTIGATIONS

When facilities exist, the investigation of an obscure case of pyrexia may conveniently be taken in stages, beginning with a total and differential white cell count often accompanied by blood sedimentation rate determination; the second stage comprises an x-ray of the chest and the third a blood culture. At the present time the demonstration of primary tuberculosis in a child is so valuable as an indicator of previously unsuspected open tuberculosis in an adult that one could make a case for tuberculin testing and chest radiography as a routine investigation of every child with a fever of more than one week's duration. Despite recognition of the dangers of irradiation no-one would cavil at a chest x-ray of every feverish child with a raised sedimentation rate, a normal total white cell count, and normal physical signs.

SOME FIRST PRINCIPLES

As this article is part of a symposium on domiciliary care, an apology may be needed for devoting so much space to a discussion of diagnosis. Yet experience suggests that lack of a definite diagnosis is responsible for many of the difficulties experienced in the medical care of a feverish child in his own home. At a time when specific control of bacterial infection has become so nearly complete there is an ever-present temptation to make therapeutic trial of antibiotic therapy: the more doubtful the diagnosis the broader the 'spectrum' of the antibiotic one is tempted to choose. Parents and doctors alike are apt to forget that their own mothers nursed them through their own childish feverish ailments with the support of their family doctor and without specific therapy. In this respect, perhaps, recent advances in medical science have led to comparative neglect of the art of medicine. The art applied to the management of a feverish child must comprise either a diagnosis and possibly specific treatment, or, alternatively, a confident attitude in the face of an unexplained fever together with an explanation designed to relieve anxiety, some advice on general symptomatic measures, and an offer to call daily until the child is clearly on the mend.

In trying to relieve anxiety it often seems helpful to mention by name some of the currently much feared diseases and to explain why this particular illness is not one of them (poliomyelitis, appendicitis, and tuberculosis seem much in parents' minds these days). It may be useful to draw attention to a child's excellent reserves of strength and recuperative powers and even

to recall sound recovery from some previous illness. Although the laity generally, and parents particularly, nowadays demand an explanation of almost every symptom, a certain reticence on the doctor's part is still as much a part of the art of medicine as ever it was. One recalls a very young general practitioner who left a house saying: 'I'll call again tomorrow—if she's not better then it must be meningitis'; and another who suspected poliomyelitis but decided to keep his suspicions to himself for a bit yet who hardly set minds at rest by replying to a question: 'Mother, if I told you what I think it is you wouldn't sleep a wink tonight'.

GENERAL MANAGEMENT

Among general measures in the treatment of the feverish child none is more important than adequate rest, yet none is more difficult to secure, especially in serious illness in poor quality homes. Every experienced practitioner has seen a baby with pneumonia nursed on the knees of a relay of relatives and almost literally toasted in front of a fire. 'Come into mummy's bed for a bit' may be appropriate for a child having a nightmare, and a bed in the living room may suit a child in the convalescent stage of rheumatic fever, but in an acute illness of any severity the child is best by himself in his own bed or cot. A warm room may be desirable but it is better cool than too hot; cool moist air suits respiratory infections particularly well. A vest under the pyjama jacket and a jersey over the top 'to guard against a chill' may encourage a mother to open a window and cool her child's sickroom. Sometimes a significant reduction of fever can be obtained by removing sources of artificial heat.

At the height of his illness the sick child needs little stimulation from toys or entertainment. Left to himself he will drowse and sleep much of the day. As his condition improves and he begins to want his toys convalescence begins and it may be better to dress him and allow him to get up for an hour or two. In rather a special category are those children whose frequent absences from school and days in bed, despite little medical evidence of illness, gradually give rise to suspicions of functional pyrexia and maternal anxiety rather than cryptic infection; the care of these children will be discussed later.

DIET AND FLUID REQUIREMENTS

There is scope for practice of the art of medicine in advising on diet for a feverish child. Essentially it had best be light and as nourishing as the child's appetite will permit. If, physiologically, a period of negative nitrogen balance is accepted as almost inevitable, in common humanity the parents must be assured that a few days of semi-starvation—if the child won't eat—can do no harm, that adequate natural reserves will be called upon; convalescence will provide the opportunity to restore lost flesh: 'Feed a cold but starve a fever'.

Such a complacent attitude must not be adopted towards the child's fluid requirements. A daily minimum should be stated; persuasion and coaxing may be needed. Two-and-a-half-ounces per pound of body weight (155 ml. per kg.) a day is the rule for infants; one pint (0.57 litre) a day at one month, two pints (1 litre) at one year, three pints (1.5 litres) at six years, are convenient figures to remember for the basic fluid requirement, to which more must be added to cover unusual losses. The bowels may safely remain confined for a few days but the urine output should be watched. A mother may more usefully record the number of wet nappies or the frequency of micturition than attempt to chart the temperature. There may be one exception to this vigilant attitude regarding the possible dangers of dehydration: it is the child who suffers severe bilious attacks (cyclical vomiting). These children especially, and many other feverish children, seem to tolerate salty drinks (e.g. 'bovril', 'oxo', beef tea; even diluted bitter beer) better than glucose drinks, but the bilious child often seems to maintain a vicious cycle of vomiting all the fluids he drinks. Most parents will starve such a child until complaint of hunger heralds the end of the attack: restraint in the matter of pressing fluids, even in the face of obvious dehydration and ketosis, until the child complains of thirst may end an attack abruptly.

DRUG THERAPY

Mention has already been made of the present-day temptation to use a broad-spectrum antibiotic in obscure feverish illness. Salicylates are the sovereign remedy for feverish children, despite the occasional case of idiosyncrasy, and the theoretical possibility of masking the signs of incipient rheumatic fever. It is useful to recall the lavish dosage now used for rheumatic fever; to recognize that 1 grain per pound body weight (130 mg. per kg.) is not too much for a child in a twenty-four hour period, so that 2½ grains (0.15 g.) may safely be given three or four times a day to a fretful, feverish, teething infant. A tonic or even a linctus for a cough may be dismissed as a mere placebo, but to speak in such a derogatory sense is to deny the very real comfort that a bottle of medicine can give to a mother who would a thousand times rather have the illness herself than see her child suffer. Pharmaceuticals of this sort earned their reputation before medicine had any control of infectious disease: they have a place still if only to give time for it to become apparent that there is need to use some one of our modern powerful specific therapeutic weapons.

There is also a place for more simple homely remedies in the care of a feverish child. No-one casting his mind back would deny the comfort derived from warm camphorated oil rubbed on to the chest, or eucalyptus on a handkerchief, or honey-and-lemon sucked from a spoon, of a night-light on the dressing table, or dry pyjamas and a cool drink after a night sweat.

The child subject to *febrile convulsions* usually suffers a fit at the outset, so the provision of a few phenobarbitone tablets as a prophylactic to be used

when necessary rarely serves its purpose. More useful are a few simple instructions to the mother of such a child on first-aid measures for fits. The child who requires regular anticonvulsant therapy needs it particularly in a feverish illness. The *diabetic child* needs his insulin at such a time, however little he may be inclined to eat, although it may often seem wise temporarily to substitute two or three daily injections of soluble insulin for one daily injection of a long-acting preparation. The total daily dose of insulin may be assumed to be the same; it will rarely be less when an active infection causing fever is present.

PYREXIA OF EMOTIONAL OR FUNCTIONAL ORIGIN

So far, in discussing treatment we have considered the needs of a child suffering an acute febrile illness that may be presumed to be due to some intercurrent infection although the precise nature of the infection may not be readily apparent and may remain a mystery. In rather a different category is the child who is subject to frequent attacks of fever without obvious organic cause: 'highly strung' may describe him, over-solicitous is an adjective that may often be applied to his parents. Sometimes an emotional cause may be suspected; at other times a trivial respiratory infection may produce a disproportionate rise of temperature. The child who suffers recurrent bilious attacks ('cyclical vomiting', 'periodic acidosis') also belongs to this category. Two general features apply to many of them: they are often solitary children, the only child, or the oldest or youngest. This type of recurrent illness usually shows its maximum frequency in the early school years. The diagnostic problem becomes easier as the pattern becomes familiar in the individual case.

Sometimes there may be deep-seated psychological disturbance that requires specialist investigation and treatment; more often, at least from an everyday view point, there seems nothing seriously amiss apart from the recurrent illness, a nervous child, and parents whose anxieties are natural and understandable. In these circumstances medical care of the child entails bringing the parents to a realization that there are worse things than recurrent feverishness in a child and that two of these are chronic semi-invalidism and frequent absence from school.

These are children whose sick-rooms resemble toy shops before Christmas; if they are inclined to biliousness there always seems to be an aunt or someone holding a vomit bowl 'Just in case she feels sick, doctor'. These children seem to benefit from a certain stoical neglect on their parents' part: no toys, no special food, no 'Daddy will read to you for a bit, and then we'll move the television into your room'. A child derives much comfort from expressions that convey no hint of adult anxiety; perhaps that is why these particular cases are so unrewarding when admitted to hospital for investigation, where, in a neutral emotional atmosphere, the symptoms promptly disappear. A similar atmosphere can be engendered in the home

by such phrases as: 'Here's the basin in case you want to be sick, and I'll empty it next time I come upstairs'; 'I don't think we'll take your temperature tonight and perhaps we'll let you get up tomorrow and see what happens'.

It is the familiar pattern in each particular case that should give the parents confidence; the similarity between different cases may help the doctor to take a bold line. As Alvarez has pointed out, neurosis is best recognized at a glance, for many negative investigations, far from being reassuring, leave an uneasy feeling that something serious has been missed: 'The doctors must think there's something there or they wouldn't have looked so hard'.

These are the cases in which the experienced doctor will break the thermometer and get the child out of bed. He will encourage the parents to hasten convalescence deliberately in order to provoke further symptoms if there is hidden cause; for if there is a cause the sooner it is brought to light the better. This provocation can be taken to almost any length—the first house at the cinema if they wish—the parents' object should be to satisfy themselves that nothing the child is likely to experience at school is likely to exceed the stress they have put upon him. Satisfied that he can stand this without ill-effect they should send him back to school. The practitioner who is both wise and experienced will ever be on the alert for an illness that differs from the usual pattern: the fable of the shepherd boy ends with the wolf eating the sheep.

CONCLUSION

The theme of this article has been the care of the feverish child in his own home nursed by his mother under the supervision of his family doctor. Despite the admitted difficulties of diagnosis in many cases there can be few more rewarding medical experiences. When doubt exists about the advisability of continuing the care of such a child in his own home there is always the possibility of sharing the responsibility by consultation with a colleague, either a partner in the practice or a specialist from the hospital.

There may be good and sufficient reasons for most modern mothers to be confined in hospital; it would be a thousand pities, for children, for mothers, for doctors and for hospitals, if it were to become common to send a child to hospital because he was feverish.

NURSING THE INFECTIOUS CHILD AT HOME

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WITH the exception of meningitis, diphtheria, encephalitis, typhoid, paratyphoid and most cases of poliomyelitis, all the uncomplicated specific fevers which commonly occur in Great Britain can safely be looked after in the ordinary home. Overcrowding in the home is not necessarily a contra-indication to home nursing but in all but the mildest infections it should be possible for the patient to have a bed to himself during his illness. The cleanliness of the home and the intelligence of the mother are more important than the number of rooms in the house.

GENERAL MANAGEMENT

The patient.—Children with a fever should be kept in bed until the pyrexia has settled for at least twenty-four hours and often longer, depending upon its duration and severity. During mild attacks of rubella, chickenpox and most viral respiratory diseases no harm is done by allowing a child to go to a warm living room for a special purpose such as watching television, and some two- to four-year-olds are better served by being allowed up in a warm house than being confined screaming in a distant room. A compromise with a cot near where the mother is working is usually the best solution in such cases. The mother should keep a twice-daily temperature record and be told the symptoms of likely complications so that she can get in touch with the family doctor should any appear. When convalescence is established a final examination of the ears, nose, throat and lungs is essential in all the respiratory diseases.

Isolation of the patient from outsiders must be insisted upon but isolation within the family is often impossible and may not be desirable. By the time the diagnosis of the first case is made the other susceptibles will probably have been infected if the disease is droplet spread and in the 'inevitable' infections, i.e. measles, rubella, chickenpox and mumps, it is often wiser to encourage the infection to spread to healthy siblings who are over two years of age. The decision regarding isolation must be made at the outset and then strictly adhered to. In my view, patients with streptococcal and staphylococcal infections and acute infective enteritis, including dysentery, require nursing in a room on their own. Isolation is not carried out merely to prevent spread of the primary disease; it also lessens the risk of complications. A child with mucous membranes damaged by measles and susceptible to

bacterial attack is likely to have at least partial immunity to the strains of cocci prevalent in the throats of the family, but may succumb to unfamiliar organisms introduced by a well-meaning visitor. This was well shown in the days when it was common to admit measles and scarlet fever to open wards, when cross-infection by allied but antigenically distinct organisms accounted for many of the septic complications.

Disinfection.—The infectivity of discharges or fæces should be explained to the mother and stress be laid upon the importance of hand-washing after contact with the patient, and particularly before the preparation of food. Discharges on swabs should be burnt, handkerchiefs boiled and napkins and soiled bed linen from enteritis patients soaked for two hours in 'white fluid' (phenolic emulsion) 1 in 160, all bed linen being washed at home and not sent to the laundry. Stools and urine from these patients require soaking in 5 per cent. phenol B.P.C. before disposal if the house is not served by main drainage. It is essential that the practitioner does not combine instruction in the principles of disinfection with failure to wash his own hands after examining the patient! Library books should be sent to the local public health department for disinfection. Fresh air and sunshine are the best agents for terminal disinfection in the home, combined with suction cleaning of carpets and upholstery and washing floors with soap and water.

The family.—Quarantine of contacts is used much less than it used to be. Child contacts of scarlet fever, whooping-cough, infective enteritis, measles, rubella, mumps and chickenpox should be allowed to go to school provided they are sent home at the first suggestion of fever or malaise. Adult contacts of infective enteritis and streptococcal infections whose work entails the handling of food supplied to the public should be quarantined for a week if alternative work cannot be found for them by their employer, and preferably have a negative stool or throat culture before being allowed back. The medical officer of health will decide upon the period of quarantine necessary, and it is in these infections particularly that prompt notification is essential.

STREPTOCOCCAL INFECTIONS INCLUDING SCARLET FEVER

A five-day course of phenoxymethylpenicillin should be given in all cases. Penicillin is much more effective than the sulphonamides in eliminating streptococci, and resistant strains do not occur. A final examination including testing the urine for albumin should be done ten to fourteen days from the onset and the child allowed back to school after fourteen days if the respiratory tract is healthy. When recurrent streptococcal infections occur, nose and throat swabs should be taken from all members of the family and any carrier be treated with penicillin, the swabs being repeated on cessation of treatment.

WHOOPING-COUGH

This is the most serious and most troublesome of all the common specific infections. An attack of moderate severity requires a great deal of nursing

attention and when two or more children are affected it may be necessary to seek hospital admission for them to let the mother get some rest. Segmental collapse is extremely common in whooping-cough, and fever occurring five days or later after the onset of the paroxysmal stage suggests some complication—probably infected collapse. The evening temperature should be recorded as long as the spasms last and in all but the mildest cases the chest should be x-rayed in convalescence. While afebrile, children should be up and out if they feel well enough, as many do, between their spasms. Infected collapse or the lighting up of a primary tuberculous focus are the commonest causes of failure to thrive and regain lost weight after whooping-cough.

Drug therapy is disappointing. The tetracyclines, if started early enough in the catarrhal stage, modify the disease and one of their greatest uses is in giving them at the first appearance of respiratory symptoms in uninoculated contacts in the family, particularly babies under one year. In the absence of complications antibiotics are valueless once the paroxysmal stage is established. Phenobarbitone lessens the frequency of the spasms, and liquid atropine methonitrate is of value in diminishing post-spasm vomiting but I have not found it to affect the paroxysms.

Isolation should continue for a minimum of three weeks from the onset of the whoop.

MEASLES

Routine sulphonamides or antibiotics are neither necessary nor desirable. I believe penicillin to be the best prophylactic drug (the phenoxymethyl preparation by mouth is completely satisfactory) and that it is indicated in children in the following groups:—

(1) Those under two years of age.
(2) Those with previous middle-ear disease.
(3) Those suffering from some other illness.
(4) The very ill.

It is a common mistake to regard the high temperature (often 104° F. [40° C.]), the raised respiratory rate and the medium crepitations which so often accompany the appearance of the rash as being due to bacterial pneumonia. If pneumonia is present, however, the pulse-respiration ratio will be less than 4 to 1 and the child will be restless, more toxic and perhaps cyanosed. At this stage the appearance of the child is more helpful than stethoscopic signs.

Convalescence in measles should be rapid once the rash starts to fade: any undue delay suggests a septic complication in the respiratory tract or, as in whooping-cough, the reactivation of a tuberculous infection. A previously positive Mantoux reaction often reverts to negative for two to four weeks following measles, so a negative test at this stage will need to be repeated. Sudden drowsiness, irritability, convulsions, retention of urine or paralyses appearing between the fifth and the fourteenth days indicates the onset of an encephalomyelitis and requires urgent admission to hospital.

Isolation can cease ten days from the appearance of the rash if all discharges have dried up. Measles can be prevented or attenuated with gamma globulin obtainable from the medical officer of health and its use should be considered in young family contacts or older children suffering from some other disease.

RUBELLA, CHICKENPOX AND MUMPS

Rubella.—Complications are rare, though 'flitting' arthritis in young women occurs often enough to deserve mention. Patients can be released from isolation as soon as the rash has faded. A frequent problem is the occurrence of rubella in a household in which the mother is in the early months of pregnancy. If it is uncertain whether she has had rubella she should be given 750 mg. of gamma globulin.

Chickenpox.—This highly infectious exanthema may be complicated by abscess formation from infected lesions. Ordinary skin washing, 1 per cent. aqueous gentian violet applied to infected spots, and calamine lotion to prevent scratching if the rash is particularly itchy, should prevent this. Prophylactic antibiotics are not necessary even in cases with extensive rashes but neomycin ointment is of value if superficial sepsis is not controlled by gentian violet. Patients should be regarded as infectious for fourteen days from the appearance of the rash or until all the lesions are dry but there is no need to wait until the scabs have separated.

Mumps.—Treatment is symptomatic and the patient can be released from isolation seven days after the appearance of the last glandular enlargement. Orchitis is rare in pre-pubertal males but responds rapidly to one injection of 100 units of corticotrophin. As subclinical attacks are common, other members of the family may develop immunity without apparent illness. It is also worth remembering that mumps is one of the commonest causes of lymphocytic meningitis in this country and that many such cases have no salivary gland involvement.

INFECTIVE ENTERITIS

Dehydration is the danger in these infections. The urinary output is a good guide and the mother should be instructed to note the frequency and approximate quantity of urine passed. The plump nine- to eighteen-month-old baby is the one in whom the diagnosis of dehydration is sometimes delayed too long because the fat masks the fluid loss on a superficial inspection. But all the signs—depressed fontanelle, loss of skin elasticity, and oliguria—will be there if looked for. Treatment of the mild case will consist of fluids only until vomiting has stopped for twenty-four hours, but if there is no vomiting a light diet is permissible. Sodium-potassium-chloride tablets (B.D.H.) are a convenient way of giving electrolytes. One tablet dissolved in five ounces (140 ml.) of sugar-water or sweetened fruit juice is equivalent to one-third normal saline. A three-day course of oral streptomycin, or a tetracycline, will clear up most cases of Sonne or Sal-

monella infections. Ideally, the patient should not be regarded as non-infectious until three negative stool or rectal swab cultures have been obtained but, if this is not practicable, isolation for a week after the cessation of diarrhœa is a reasonable compromise.

INFECTIVE HEPATITIS

I believe that rest in bed is of paramount importance in the acute stage and that the incidence of relapse is higher if rest is not enforced. As many children feel well once the jaundice has appeared, it may be difficult to enforce bed rest at home and such cases are better in hospital under supervision. They should remain in bed until clinical jaundice has disappeared. Diet in the acute stage should be to taste, with glucose predominating if anorexia is marked. As the appetite returns and the temperature falls a good protein intake of up to a hundred grammes a day should be aimed at.

POLIOMYELITIS

If the diagnosis is certain and the home conditions very good it is reasonable to nurse mildly paralytic cases at home but, because of the likelihood of swallowing difficulty or respiratory muscle weakness developing, hospital admission is essential in any child with cranial nerve paralyses or neck or shoulder-girdle weakness. There is little risk to the rest of the family in keeping a patient with poliomyelitis at home, as all susceptibles will already have been infected by the time the diagnosis is made. All patients with paralytic poliomyelitis must be nursed in bed for a minimum of three weeks, with simple splints to prevent deformities and daily passive movements to the affected joints. Bed linen should be soaked in disinfectant before washing as in enteritis cases, and the patient isolated for four weeks. Child contacts should be kept away from school for three weeks but adults can go to work unless their work involves food-handling or contact with young children.

Non-paralytic poliomyelitis is primarily a diagnostic problem which I cannot consider here but on the rare occasion when a confident diagnosis can be made at home the above suggestions apply except that a fortnight in bed is sufficient.

CONCLUSION

In a short article dealing with many infections it is only possible to be dogmatic and in differing circumstances more or less stringent isolation techniques will be appropriate. When an infection occurs in a household it is usually better to regard the family as a potentially infected unit rather than aim at a standard of isolation within the home which will be difficult to maintain. Close watch for early symptoms among the rest of the family, with consequent early isolation, will lessen the spread of the infection in the community.

THE CRIPPLED RHEUMATOID PATIENT

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CRIPPLING in rheumatoid arthritis may be temporary or permanent. In the active periods of the disease inflammation may cause so much pain, muscle wasting and limitation of movement that, for the time being, patients may be even more disabled than the typical rheumatoid cripples. Yet, if there is an early remission the affected joints may resolve, leaving little or no permanent defect. Thus, in the early stages it is often difficult to decide when measures to combat crippling should be employed and especially whether the use of the more elaborate or expensive equipment is justifiable.

THE IMPORTANCE OF REST

In the absence of a specific antidote to rheumatoid arthritis, the cardinal principles of treatment in the active periods are general rest, the relief of anxiety, and local rest for the affected joints by means of splints combined with assisted movements to prevent unnecessary stiffness or fixed deformity, together with dietetic and other measures to combat the systemic manifestations of the disease. Rest is so often effective in the active disease that it is the treatment of choice, and the necessary inactivity should be accepted for a period of three months, and occasionally up to six months. Rest, however, may be impracticable for social reasons or difficult to insist upon when the onset is insidious or the course of the disease benign. In these circumstances it is necessary to reduce the general level of activity and relieve the local strain on the affected joints as fully as is consistent with continued employment or domestic duties. Fortunately, many of the procedures which have been developed primarily to help chronic rheumatoid patients to overcome or minimize permanent physical handicaps can be used with advantage in the acute periods to reduce the stresses and strains of functional activity.

When the disease becomes quiescent or appears to have run its course there may be a degree of permanent crippling, ranging from slight to extensive depending upon the severity or duration of the active periods and the efficacy of treatment. With the cessation of inflammation pain becomes less or disappears, muscle power improves and, unless fibrous ankylosis has occurred, there is usually substantial improvement in the range of movement. It is at this stage that a considerable measure of rehabilitation may be possible, even in those who are severely crippled. Yet the opportunity is often missed because the commonly protracted and progressively disabling course of the disease tends to make patients, relatives and their

doctors resign themselves to accepting indefinite invalidism with the necessity for palliative treatment and nursing care.

RESTORATION OF INDEPENDENCE

One of the encouraging features of the past decade has been the extent to which it has become possible to enable severely handicapped people, including rheumatoid cripples, to become independent of relatives or nursing attendants in the activities of daily living and often to work in suitable open or sheltered industry. This article is primarily intended to outline some of the ways by which it can be done; but before doing so it is worth noting the several advantages which follow the restoration of independence and purposeful activity.

In any long, painful and disabling illness there is a tendency for the pain threshold to become progressively lower and for patients to be resigned to being dependent upon other people for support, palliative treatment and attention to their personal comfort. Whilst some patients are long-suffering and uncomplaining, others become self-centred, demanding upon their attendants and unwilling to help themselves. In the latter group relatives may lose sympathy and patients then plead increasing pain and disability as the means of obtaining their own way. Often visits by ambulance to hospital for treatment are the only times rheumatoid cripples get away from their homes. It is therefore not surprising that regular attendance in a sympathetic physiotherapy department has a strong appeal, or that discharge is resisted by fresh complaints as soon as those under treatment have been relieved.

Yet, if a successful attempt is made—and initially it requires considerable effort by the patients and their attendants—to regain independence and engage in purposeful activity, pain and the demand for treatment lessen and may cease entirely. Indeed, it often seems that the mental occupation and satisfaction of working within the limits of their physical capacity constitute the best analgesic for chronic rheumatoid patients.

Thus the restoration of independence and purposeful activity greatly improves the morale of patients, reduces the burden on their relatives and the demand for palliative treatment. In severe cases, of course, no more than some lessening of dependence can be achieved. Nevertheless, even this is rewarding to the patient and relatives. The more that is attempted in this field the greater is the realization that it is seldom that a worthwhile measure of improvement cannot be obtained, even with the most severely disabled.

AIDS TO FUNCTIONAL ACTIVITY

There are four main ways of helping crippled patients to overcome or minimize their physical disability:—

(*a*) By surgical appliances such as splints, walking aids and wheel-chairs, including invalid motor tricycles, to reduce the strain on the affected joints.

(*b*) By various simple devices, sometimes referred to as gadgets, to facilitate toilet, dressing, feeding, recreation and occupational activities.

(*c*) By structural alterations in the home and workshop, such as the provision of ramps, hand rails and hoists, or the rearrangement of domestic or industrial apparatus to facilitate the work of the crippled housewife or workman.

(*d*) By teaching patients ways of achieving functional activity by utilizing normal equipment in different ways rather than by the use of special appliances.

The last mentioned is the most important. Faced by a practical difficulty, the tendency is to devise some aid or structural adaptation to overcome it. Thus, disabled patients are apt to become surrounded by special equipment, whereas the primary objective should be to use the minimum of artificial aids and to help cripples to seem to be as normal as possible both to themselves and to other people. Even though patients need special aids for a time, they may soon learn to do without them. This possibility, however, does not warrant withholding expensive equipment, though it does underline the advantage of appliances being available on loan through hospitals, local health or welfare authorities and voluntary societies.

SURGICAL APPLIANCES

There is a tendency in the management of rheumatoid arthritis to make insufficient use of splints and other surgical appliances to relieve the strain on affected joints and to facilitate functional activity. More especially the use of surgical appliances is often delayed until necessitated by marked disability and fixed deformity, whereas they are most valuable when employed as a prophylactic. Many anatomical movements are not required for the essential activities of daily life and it is often possible to eliminate them and relieve pain in joints affected by the disease.

For instance, inversion and eversion of the foot are not essential. The timely use of light leg-irons will relieve pain in the subastragaloid and midtarsal joints without interfering with walking and at the same time prevent the typical valgus deformity at the ankle. Often the use of this splint leads to rapid relief of pain, swelling and other signs of activity in joints previously resistant to physiotherapy or injections of hydrocortisone. Again, flexion and extension of the wrist are seldom essential and a light moulded plastic wrist splint will improve manual function by relieving pain and preventing ulnar deviation.

At the first sign of fixed flexion in the knee a back splint should be worn at night and, if this is insufficient, a knee cage with hinge and lock by day. It is usually possible to discard the splints when active disease in the affected joints has subsided but, if fixed deformity is allowed to occur, restitution is difficult to effect and a tendency to relapse may persist. The adages about closing a stable door and a stitch in time are particularly apt when applied to the use of surgical appliances in rheumatoid arthritis.

AIDS TO THE ACTIVITIES OF DAILY LIVING

Many rheumatoid cripples cannot sit on or rise from a chair of normal height without the help of one and possibly two adults. Yet if the chair is

raised a few inches they can manage alone although they may need arms on the chair or to get some help from adjacent furniture. The same applies to a divan bed, the favourite easy-chair or the toilet seat. It is surprising how many cripples need help in the lavatory or have to use a commode when their difficulty may be overcome by a high toilet seat and a hand-rail on the wall. A portable seat to give the necessary few inches of extra height is available or can be hinged to the wall and brought into use when required.

FIG. 1.—Larger handles shaped to meet individual requirements often make it possible for rheumatoid cripples to use normal equipment.

Getting in and out of the bath can be facilitated in various ways. The simplest is a bathroom stool the same height as the rim of the bath, a small wooden seat which fits across or in the bath and a hand-rail fitted in the wall or edge of the bath. By sitting on the stool and grasping the rail the patient can ease the legs into the bath and then transfer the buttocks to the bath seat. A more expensive refinement is a hydraulic bath seat operated from the bath tap to lower patients into the water, but not all arthritic patients can use it.

In spite of the foregoing simple aids, some patients are too crippled to get themselves unaided in and out of chair, bed, bath or toilet seat. The handling of these patients by a single-handed relative or nurse has been greatly facilitated by the introduction of mobile hydraulic hoists.

Patients can wear nylon slings next to the skin and held in position by broad elastic bands round the chest and thighs. Ropes from the hoist are attached by safety clips to rings on the slings. There are four rings: one in each axillary line and one on the front of each thigh. Small slots in the seams of night and day clothes allow the rings to be brought into use when required for transferring the patient from bed to easy chair, wheel-chair or toilet.

Nylon slings are durable, easily washed and can be used in the bath without harming them. The hoist is safe and comfortable. Totally disabled patients can be moved in it readily from one room to another—by a child if necessary.

Nowadays a large number of aids is available to facilitate dressing, feeding and recreational activities. There are too many to describe in detail. In general they consist of normal equipment fitted with longer handles and larger or shaped grips to compensate for the impaired range of movement in the arm joints and defective hands of rheumatoid patients (fig. 1). Clothing has to be loose fitting and modified by openings in the front and the use of large buttons or zip fasteners with large rings to operate them.

By exploiting modern aids to the full, cripples who have been full nursing cases can be given a great measure of independence. The main difficulty with long-standing cases is to persuade patients, their relatives and nurses that it can be done.

Stairs often present difficulty and may be impossible for the rheumatoid cripple. A light wooden box, $3\frac{1}{2}$ inches (9 cm.) deep, large enough for the

FIG. 2.—A patient who was bedfast for 17 years but is now able to run her own home, drive an electric tricycle, and is trained for book-keeping. The standard whisk is easily attached to the working surface by a special clamp. A sling and spring relieves the strain on the arm. (By courtesy of the *Nursing Times*.)

FIG. 3.—Two crippled rheumatoid patients preparing lunch during rehabilitation, showing a walking trolley with a ramp for sliding pans to different levels.

foot, and attached to the end of a walking stick can be used as a portable step to halve the height of the normal stair tread. This simple device, together with a hand-rail on both sides of the stairway, may solve the difficulty. As a permanent arrangement in the home an additional half tread

wide enough for one foot can be fitted up one side of the stairway by any handyman at a relatively low cost.

For those who find the physical effort of climbing the stairs too great, a moving tread can be installed. This is an additional tread starting level with the ground floor and running on rails attached to the wainscoting at the sides of the stairway to end level with the upper landing. The moving tread is operated by a chain drive from a small electric motor in the cupboard under the stairs. A hand-rail and starting switch are attached to the moving tread. This apparatus is worth while for a single long flight of stairs but would be expensive to install for several short flights.

THE CRIPPLED HOUSEWIFE

Much can be done to help the housewife crippled by rheumatoid arthritis to do her housework (fig. 2). There are various requirements. The cooker should have an oven at waist height and, to save unnecessary movement, should be adjacent to the sink and store cupboard. All should be joined by working surfaces so that heavy pots, pans and kettles can be slid along with little or no lifting. A stout walking trolley with the top the same level as the working surfaces can be used to transport dishes from the kitchen to the dining-room (fig. 3). Larger handles on taps, pans, and domestic appliances greatly facilitate use by crippled hands. Long-handled brushes, dust pans, and mops, and waist-high electric switches and gas taps eliminate bending and stooping.

Most of the adaptations required are simple and inexpensive. Not only is the housewife happier, and usually less conscious of pain and disability, if she is able to run her home, but the burden on husbands and daughters is lessened and the need for home helps reduced to that required for heavy work such as scrubbing.

THE PROVISION OF AIDS AND APPLIANCES

Surgical appliances are available through the National Health Service. The construction of simple aids to the personal activities of daily living and the instruction of patients in their use are major functions of the modern occupational therapist. Many aids and appliances are available on the market. Information about these and the simple aids which can be made at home is available from the British Red Cross Society, the British Rheumatic Association and other voluntary societies concerned with the welfare of cripples.

The welfare officers of the local authorities that have instituted schemes for the welfare of the physically handicapped, under section 29 of the National Assistance Act, 1948, are able to arrange for structural adaptations in the home and for the provision of such aids and appliances as are not available through the hospitals or the care and after-care service of the local health authority.

DOMICILIARY PHYSIOTHERAPY

By DORIS M. BAKER, M.D., F.R.C.P.

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THERE is nothing new in domiciliary physiotherapy and this type of service was in being some years before the introduction of the National Health Service. Probably the first unit was started in 1919 in Cambridgeshire, in the Isle of Ely; the first entirely mobile unit was in service in East Surrey in 1943. Despite all financial difficulties there has been a steady increase in the number of domiciliary units in different parts of the country. For the most part these are under the control of local authorities and operate more especially in rural areas where attendance at hospital or clinic is quite impracticable. There are also units run by private enterprise, but these are expensive and are therefore not suitable for the large majority of patients.

THE MOBILE PHYSIOTHERAPY UNIT

A very good case can be made out for a mobile unit being part of the equipment of every hospital physical medicine department. The type of patient who is most in need of such a service is one who is chronically sick and confined to his own home because of his physical condition. By far the greater number will be suffering from some form of chronic or subacute arthritis, others will be mainly neurological or orthopædic cases. Many of these patients should be in hospital, but such is the demand on hospital beds that there is no place for these long-stay patients who may occupy a bed for weeks or months. The alternative to treatment in the home is to convey the patient two or three times a week by car or ambulance to the hospital or clinic. This is an uneconomical procedure and wasteful of time and man power; in addition it is often medically most undesirable. If very disabled, the patient is often overweight, and rarely is the bedroom on the ground floor; two people are needed to transport her to the car or ambulance and not infrequently narrow and awkward stairs have to be negotiated. Such is the pressure on the car and ambulance services that it is often impossible to be on time when collecting the patient from her home and arrival late in a busy physiotherapy department with an appointment system, disorganizes an already overcrowded programme. The patient having had her treatment may have to wait a long time before the car or ambulance is available to collect her and on reaching home she is so exhausted by her outing that any value she may have derived from the treatment is dissipated.

To quote a woman's own words. 'I was at the hospital by 1 p.m., and I got home by 6 p.m. It was draughty where I was waiting and I got very cold, and was quite exhausted by the time I got back'.

Another case illustrates the medical unsuitability of such treatment.

A woman had been attending a hospital physiotherapy department for treatment for osteoarthritis of the hip. She was very crippled and overweight and had to be conveyed by ambulance. After one such attendance she arrived home exhausted and, as she was being helped up her front-door steps, the pain of coronary thrombosis started. An hour later she was admitted to hospital under my care and despite every effort she died at the end of a few weeks. There is no doubt that this woman's illness was the direct result of the effort involved in getting treatment for her arthritis and this is not an isolated or unusual case.

There are undoubted advantages of a social nature in attendance at a hospital or clinic. The patient meets and talks with other equally disabled people, and in the cheery, kindly atmosphere of the department there is a helpful element of competition. The obvious disadvantages, however, quite outweigh benefits of this kind.

FIG. 1.—A mobile physiotherapy unit.

No-one has approached the problem of equipping physiotherapy units with more practical realism than Russell Grant and those planning a unit, particularly where strict economy is necessary, will do well to study his article entitled 'A Physical Medicine Service' (1956).

Fortunately, the requirements of a domiciliary physiotherapy unit are comparatively simple (fig. 1, 2). For conveying the equipment for domiciliary physiotherapy a small commercial van, such as a Ford, Austin or Morris, is quite adequate, and can easily be driven by the physiotherapist herself. A more elaborate set-up is a large van, big enough to hold one or two treatment couches, fitted with a generator and wired for the giving of treatment in the van itself. This would be of great use in rural areas where homes can be entirely unsuitable for the simplest physiotherapy, and where it is not unusual to find no electricity. It could also be used to service centres set up in health centres, cottage hospitals, village halls, and the like.

FORMS OF TREATMENT

In the past few years a critical appraisal has been made of the various forms of physiotherapy in use and much complicated and expensive apparatus has been discarded as of no clinical value. The importance of some form of heat as a preliminary to any purposeful treatment is unquestioned: it is relaxing and comforting and prepares the patients for the movements

and exercises that should follow. Most homes are wired for electricity and heat can be provided by an infra-red or leucodescent lamp; with this should go a tall stand with a firm base. Another useful piece of apparatus is a small radiant-heat cradle. Hot paraffin wax is simple to apply and can be used for several joints at the same time. The wax can be melted in a double saucepan or a bowl over a gas or electric ring, and applied either with a brush or, if in a wide pan, a ladle. The part is then wrapped in polythene or greaseproof paper and covered with a blanket or shawl; the only other essential piece of equipment is a Fahrenheit thermometer. For neurological cases or patients with very weak muscles, a mechanical stimulator has its uses, and a combined portable faradic and galvanic unit should be provided. For the occasional treatment of chronic wounds, varicose ulcers and the like, ultra-violet light seems helpful and a small lamp should be added to the other pieces of equipment. By far the most important part of any treatment will be the movements and exercises that follow the warming-up; painful limbs are more freely moved when supported and a very helpful and not expensive piece of apparatus will be a tubular upright fitting which can be adapted to the head or foot of a bed for the attachment of slings. It can also be used for pulleys and weights when, as the patient progresses, some mechanical resistance is needed to strengthen muscles.

FIG. 2.—The physiotherapy unit in action.

For keeping painful joints relaxed and in a good position plaster splints are very helpful, particularly at night. The physiotherapist can make these in the home and should have with her stockinette to cover the part, plaster bandages, a macintosh sheet and rubber gloves to protect her hands.

Although short-wave diathermy heats the tissues to a greater depth than radiant heat, it is a refinement not a necessity. A lightweight portable unit, a 'mega therm,' is now available, which can be handled without great effort

by the physiotherapist and is therefore suitable for home treatment; this can be added to the equipment if finances allow.

THE PHYSIOTHERAPIST

By far the most important component of a domiciliary physiotherapy unit is the physiotherapist herself. Over and above any benefit the patient will derive from the physical treatment itself, there is, in addition, all that is implicit in the regular visit of the physiotherapist to the home. During the time spent with the patient, relatives or friends can be instructed as to how to make the best use of the facilities in the house.

The bed can be adapted to give the best support for painful limbs: e.g. boards can be placed under a sagging mattress to keep hips and knees in a good position. The posture of the patient in bed can be arranged so as to avoid cramping of the chest, and the development of disabling deformities of the upper limbs. Splints can be devised to relax painful joints at night. The patient must be encouraged to carry out daily exercises; to provide the preliminary heat, a relative can be shown some simple measure: for example, how to apply hot-water bottles, with the proper precautions, or the careful use of a bowl electric fire. It is quite possible to teach anyone of average intelligence how to apply hot paraffin wax, so long as they are warned against the dangers of allowing the wax to vaporize.

In addition to treatment, the patients can be taught activities which will be both beneficial and interesting; they can also be shown gadgets designed to help them in carrying out some household tasks or in overcoming some of the problems of dressing. It is essential that a patient should be as independent as possible and this will depend largely upon the attitude of relatives and friends. The physiotherapist can be of the greatest help in countering oversolicitude and in ensuring that the patient is allowed to do as much as possible for herself. By these means the tendency to sink into a state of immobility can be avoided, and a new interest will be provided and confidence restored.

USE AND ABUSE

It is easy to see how a service of this kind can be abused, either by treating patients over too long a period of time, or by giving physiotherapy to patients who are in no need of it or will derive no benefit; this use of valuable treatment as a panacea or placebo is greatly to be deprecated. In order to avoid this, patients should be seen in the first instance, either in the physical medicine department of a hospital or, if this is out of the question, by the specialist on a domiciliary visit. At hospital with x-rays, pathological and other services the condition can be correctly diagnosed and assessed and suitable treatment prescribed; in addition, the patient will have the advantage of help from the almoner's department. The patient should be seen again at regular intervals in order to alter treatment if necessary or to stop it when

it is no longer needed. In any event a definite number of treatments should be prescribed and this number should not be exceeded unless the patient's own doctor, or the physiotherapist treating the case, considers that it will be beneficial.

SHORT-TERM CASES

There is a definite place for the use of this type of service by the general practitioner for short-term cases. Often the early application of heat and exercise will enable a patient to get back to work in the shortest possible time. An acute flare-up of an arthritic joint, for instance, can be greatly relieved by early physiotherapy. Many minor injuries such as sprains and strain will undoubtedly recover more speedily with the application of some physiotherapy. If treatment requested by the patient's own doctor is confined to short-term cases only, this should not prove too great a demand on the physiotherapist's time.

CONCLUSION

The initial outlay in money for a domiciliary physiotherapy unit need not be considerable; thereafter the yearly expense will be from £800 to £1000. This will include the cost of operating the van, running and maintenance of van and apparatus together with the physiotherapist's salary. The number of patients treated will vary according to distances and length of treatments but will usually be from seven to nine daily.

That a unit of this kind will lighten the pressure on physiotherapy departments, ambulance and car services is without question, but what is probably more important, patients will derive real benefit from their treatment, and it should not be forgotten that this is its prime purpose. Furthermore it will help to reduce the suffering, misery, loneliness and self-pity of the large company of chronic sick.

I am indebted to the Tillingbourne Valley District Mobile Physiotherapy Unit for permission to reproduce the illustrations in this article.

Reference

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THE CARE OF FRACTURES IN PLASTER OF PARIS

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Many plasters are unnecessary and some are cumbersome. A general practitioner cannot remedy these faults. He must assume that the surgeon who applied the plaster knew what he was doing. The plaster as a whole must remain. But there are ways in which a general practitioner can serve his patient.

WHEN THE PLASTER IS TOO TIGHT

When the blood supply to a limb is cut off completely the limb dies. This may happen at the time of the accident and is easily recognized. Of more importance is the fact that a partial cutting-off of the blood supply can occur after the accident. The flow is not stopped completely but is inadequate. Parts of particular muscles suffer most. They die and are replaced by scar tissue which contracts; and the well-known condition of Volkmann's ischæmia ensues.

It is by no means certain what causes post-accident interference with the circulation. Effusion into the tissues, pent-up under a rigid fascia, is the probable cause when the anterior tibial muscles of the leg are affected. With injuries about the elbow the probable explanation is arterial spasm. The main artery constricts when damaged, and the spasm extends up and down to involve the collaterals so that all the main branches are narrowed. Lastly, the plaster may be too tight. It is known that Volkmann's ischæmia can appear when no splint has been applied, so that too tight a plaster cannot always be the cause. Nevertheless the legal profession thinks it is. The surgeon should be able to prove that the plaster was not too tight; that is his responsibility. But the general practitioner is also involved because he must be able to detect ischæmic myositis, for if the ischæmia is relieved in time its harmful effects are avoided.

It is not always easy to decide whether a plaster is too tight. Often the radial pulse cannot be felt even when the circulation is adequate. Pain is prominent, but a broken bone is often very painful for the first few days. The colour of the extremity is distinctive; to me, being colour blind, it appears to be plum-coloured. The main sign, however, is inability to move the digits. There is no need to worry about the circulation when the patient can move his fingers. If he cannot or will not, it should be assumed that the plaster is too tight and the patient should be sent back in double-quick time to the surgeon who put on the plaster.

Sometimes, perhaps after a plaster has been on for some days or weeks, œdema of the foot (rarely of the hand) appears without pain or any loss of function. This indicates interference with the venous return. Unlike interference with the arterial supply it is not serious. Nevertheless the patient should be referred back, at leisure, to the hospital. Nibbling pieces off the end of a plaster cast is useless. The plaster must be taken off and, if necessary, another applied, and a general practitioner cannot be expected to do this.

PRESSURE SORES

Bony points covered only with skin are liable to pressure. The pressure causes pain, which the patient can localize accurately. Pain continues for a few days until the skin dies. The patient then ceases to complain and the doctor dismisses all thought of a pressure sore. The sore remains and becomes infected. Septicæmia and death have been known to follow. It is thus important for the general practitioner to discover a pressure sore: early, in order to relieve the intense pain; and later, in order to forestall sepsis.

Whenever a patient complains of a painful plaster and can put the tip of one finger on the spot, the presence of an incipient sore may be taken for granted. A small hole should be made over the spot by scraping with a knife after moistening the area with hydrogen peroxide. The skin at this early stage shows only a tiny red mark which, however, is exquisitely tender. Should the pressure not have been relieved the sore becomes clinically silent as soon as the area of skin has died, and is only revealed by localized staining of the plaster and by the smell. The doctor's nose applied near to the plaster detects the peculiar smell of gangrene. Doctors have been heavily penalized in the law courts for pressure sores: an unfortunate procedure which can practically always be forestalled by cutting a hole in a plaster over any area of localized pain.

The dangerous sites in the leg are the head of the fibula, the back of the heel, the two malleoli and the head of the fifth metatarsal; and in the arm, the head of the ulna.

UNCOMFORTABLE EDGES

The surgeon who is attentive to his patient's comfort takes care to use stockinette next to the skin and to pull this back over the top and bottom of the plaster cast in order to make a comfortable rolled edge. If this has not been done the patient may complain that the edge sticks into him. It is quite in order for the general practitioner to whittle away the rough edge with a knife. The wool underneath is left and made secure by a circular strip of strapping. A plaster knife is essential in general practice. This is a knife used by leather workers and costs a few shillings and is easily sharpened on a coarse grindstone. Unless it is sharp a plaster knife is almost useless.

Movements of the fingers and toes are often restricted by the distal edge

of a plaster cast and the edge should be trimmed back in a similar manner.

CRACKED PLASTERS

These need attention. The crack is evidence of a hinging stress and if the crack is not mended the hinging continues and the fracture underneath runs the risk of non-union. In addition, one edge of the crack is apt to dig into the flesh and cause, if not a sore, sufficient discomfort to prevent the patient from taking weight. The broken plaster can be mended only by a plaster bandage; strapping is not strong enough. Now that excellent ready-made bandages are obtainable a general practitioner can easily effect the repair.

CRUMBLING PLASTERS

Local crumbling and softening are of little importance. It often happens underneath the heel. It may be disregarded so long as it does not incommode the patient. Sometimes fragments of plaster break off and behave like a stone in a shoe. If so, the softened area should be cut away in its entirety and the large hole patched by one or more plaster bandages.

MINIMIZING THE HARMFUL EFFECTS OF PLASTER FIXATION

Splintage for a fracture may be necessary but it can be harmful. Muscles that are not used lose their elasticity. They are unable to elongate to their full extent and this diminishes the range of movement of the joints on which the muscles act. The only sure way of preserving a muscle's elasticity is fully stretching it occasionally. This cannot be done under plaster. A muscle, however, preserves its power of lengthening if its tone (the amount of muscle activity at rest) can be inhibited frequently. If the patient wills himself to move a joint, one set of muscles actively contracts and the opposite set actively relaxes. This happens even though a plaster cast prevents the joints from moving. A patient should try to move all joints encased in plaster. And the general practitioner can help by explaining the purpose of the exercises and encouraging the patient to do them.

LOSS OF VASOMOTOR CONTROL

Another consequence of disuse of a limb is temporary loss of vasomotor control. Œdema does not follow the removal of a plaster when the patient has been using his limb normally. If the patient in a leg plaster gets about by hobbling on crutches or by pivoting on his heel, not only will his joints be stiff when the plaster is removed but his leg will swell. A patient retains vasomotor control throughout the time of plaster fixation if he uses his limb. In the arm this entails employing the fingers on some purposive task; and in the leg in walking in a manner as near normal as possible. This is another task for the family doctor. A patient who has been goaded into using a limb by his general practitioner will have cause to bless him when the plaster is finally removed.

HOME INVALID DIETS

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A therapeutic diet is, by definition, a modification of the patient's normal food intake to meet the particular needs of his condition. With the exception of certain research diets it is practicable for most therapeutic diets to be managed in the home. When prescribing such a diet it is helpful to ask the patient to describe first what food he usually eats. The requisite dietary advice can then be incorporated in his normal food pattern. In this way the advice does not appear alien and impracticable. If it is at all possible, it is advisable to have the person who will cook the food present when the diet is planned.

The individual planning of a therapeutic diet is obviously a more time-consuming practice than merely handing out a printed sheet of instructions. Nevertheless, the end-results are usually well worth the time expended. The therapeutic diets which are most generally used in the home are those indicated in conditions affecting the alimentary tract, obesity, diabetes mellitus, and conditions in which a restriction of the sodium or fat intake is desired.

GASTRITIS

In the acute stages solid food is generally withheld for twenty-four to forty-eight hours. Clear fluids in the form of fruit juice with glucose, yeast or meat extracts, clear broth and tea with the minimum of milk should total 3 to 4 pints (1.75 to 2.5 litres) a day. When sodium depletion has been severe one flat teaspoonful of salt can be incorporated successfully in each pint (0.5 litre) of fruit juice. Tomato juice is also a useful vehicle for salt. More than four ounces (113 g.) of glucose a day may aggravate any diarrhœa already present. Commercial preparations such as 'lucozade' are useful but expensive. They contain approximately 25 per cent. glucose.

As the condition improves milk may be added as arrowroot pudding, junket, jelly, or to drink, diluted at first if necessary. The diet should then be built up as rapidly as the patient's tolerance will allow, with the addition of bread, refined cereals, steamed white fish, eggs, butter and lean beef and lamb. Honey and jelly jams may be used for variety. Mashed potato is generally well tolerated, but other vegetables should be carefully sieved at first. Fruit purées should be added last. Fried and highly seasoned foods and nuts are excluded until the patient has recovered.

Bland low-residue diet.—This may be used in *chronic gastritis* and *diverticulitis*. Small meals should be taken at regular intervals. Gross sources of roughage, such as pips and skins in fruits, vegetables and preserves; small fish bones; whole grain cereals, e.g. 'all bran'; wholemeal breads and biscuits, and nuts, should be excluded, as should the chemical irritants

supplied by pickles, peppers, spices, bottled sauces, strong tea and coffee, and tinned and packet soups. Fried foods, pastry and suet puddings should also be avoided. It is not necessary to mince foods if the patient has adequate teeth. The diet pattern may be as follows:—

Early morning	Milky tea. Biscuit.
Breakfast	Weak tea or milky coffee. Refined cereal or strained porridge. Egg, smoked haddock or crisp bacon. Bread, butter, jelly preserves.
Mid-morning	Milky drink. Biscuit.
Mid-day (alternate with the evening meal)	Tender meat, fish, poultry, liver, ham or tongue. Mashed potato; flower of cauliflower or purée vegetable. Milk pudding or steamed sponge, with purée fruit or fresh fruit juice.
Tea	Weak milky tea. Bread, butter, jelly preserves. Plain or sponge cake.
Evening meal	Egg, fish, soft or grated cheese, or meat, etc. Bread, butter, jelly preserves. Fresh fruit juice if not yet taken. Milk drink or weak milky tea.
Bedtime	Milky drink. Biscuit.

Patients with chronic gastritis often need to be encouraged to eat regularly, and slowly, since they commonly belong to the 'tea and a snack' fraternity. Patients with diverticulitis may be worried about taking milk, eggs and cheese, which are popularly supposed to be constipating. Advice on taking adequate fluids, especially fresh fruit juice at night, together with an explanation of the condition, is helpful in overcoming this prejudice. This diet may also be used in ulcerative colitis, with additional milk and protein foods. Puréed fruit and vegetables should be used with caution, and aneurine and ascorbic acid prescribed if necessary.

PEPTIC ULCER

The dietary treatment of peptic ulcer is especially dependent on a clear understanding of the patient's usual food habits. Clinical experience in taking dietary histories indicates how commonly patients with this disorder habitually eat irregular meals at long intervals and, especially, how often they go without breakfast. A common finding superimposed on this pattern is that the patient has blamed an ever-increasing list of foods for the pain he suffers, with the result that his nutritional state may be very poor, especially in respect of ascorbic acid.

In the acute stage, when the patient is being treated at bed rest, the diet may be based on two-hourly feeds of five ounces (140 ml.) of milk, taken with a plain biscuit or thin bread and butter, or as a thin cereal pudding, junket, jelly or baked custard. Soft boiled or scrambled egg, steamed fish, minced chicken or rabbit, creamed if desired, should be added at breakfast, mid-day and/or the evening meal, in small portions, e.g. 1 to 2 tablespoonfuls. Mashed potato is well tolerated, and purée spinach, tomato or carrot may be added in a day or so. Ascorbic acid should be provided initially (50 mg. thrice daily) to compensate for the existing depletion. Highly seasoned and fried foods must be rigorously excluded.

Providing two-hourly feeds is a considerable burden on a busy housewife. A thermos flask and biscuit tin at the bedside will enable the patient to serve himself with at least some of the intermediary feeds.

The regime for the ambulant 'gastric' should be planned to take advantage of the existing meal breaks. The social difficulties created by rigid insistence on a two-hourly regime may well outweigh any benefits derived from the additional milk. Biscuits, plain or milk chocolate, or tablets such as 'nulacin' can be used to bridge awkward gaps. Times which may cause difficulty are in the early morning for poor sleepers, who may also need night feeds, and between 5 and 6 p.m., especially when a long journey home is involved. The diet routine should incorporate:—

Early morning	Milk or milky tea and plain biscuit.
Breakfast	Weak milky tea or coffee. Refined cereal or strained porridge, and/or egg or fish or tender ham. Bread or crisp dry toast, butter, jelly preserves.
Mid-morning	Milk or milky coffee. Biscuit or sandwich.
Mid-day (alternate with evening meal if desired)	Steamed, baked or grilled fish, minced or tender lamb, veal or liver, or tender ham, tongue, brains or sweetbreads. Boiled or mashed potatoes. Flower of cauliflower or a mashed root vegetable or sieved greens. Milk pudding, ice cream, steamed sponge pudding, fruit fool, stewed or baked apple, tinned peach or pear, with cream if desired.
Tea	Weak milky tea or milk. Bread, butter, jelly preserves. Plain cake or sponge.
5 p.m.	Milk and/or biscuits or chocolate.
Evening meal	Grated or soft cheese or egg—poached, boiled or scrambled, or meat or fish, etc., as at mid-day. Bread, butter. Fresh orange juice or blackcurrant purée. Milk drink or pudding.
During the evening. Bedtime. If awake.	Milk drink with plain biscuit, *or* crackers and butter *or* plain cake.

Fried and highly seasoned foods must be excluded. Pickles, bottled sauces, strong tea, black coffee, soups, meat extracts, pips, skins, raw whole fruits and vegetables, pastry, suet pudding, whole-grain cereals and biscuits, nuts, raisins and pork should also be avoided.

Common sense in the kitchen can obviate special cooking for the 'gastric'. Additional seasonings can be added after a salted portion of a suitable dish has been removed for the patient. Potatoes may be riced, and vegetables and fruits sieved, from the common pot. Onions for use in casserole dishes should be put in in big pieces so as to be easily removable. Shipley and Dundas (1951) have published recipes which are helpful in maintaining variety in the menu. It is of great importance that the patient should learn, and be able, to chew his food adequately, and to take enough time for his meals. Milk and sandwiches taken quietly at mid-day are often preferable to a rushed or badly prepared 'cooked dinner'. Ideally, smoking should be stopped, but it should at least be forbidden on an empty stomach.

HIATUS HERNIA

The dietary treatment of this condition is essentially the same as for peptic

ulcer. The condition, however, is often complicated by obesity, and can be materially improved by a 'gastric' reducing diet, supplying small frequent feeds, but only totalling 1,500 to 1,800 calories a day. This may be achieved within the following limits:—

Early morning	1 cup milky tea. 1 marie or cracker biscuit.
Breakfast	1 cup milky tea. 1 egg *or* soft smoked haddock *or* soft cheese. 1 thin slice bread. Scraping of butter.
Mid-morning	1 cup milky coffee. 1 biscuit.
Mid-day	Tender or minced meat, etc.—thin gravy only, no thick or cream sauce. Sieved vegetable *or* flower of cauliflower. Yoghourt, junket, jelly or baked custard made with milk from ration. Sieved fruit.
Tea	1 cup weak tea. 1 thin slice bread. Scraping of butter.
Evening meal	Egg, soft, cheese, etc. 1 thin slice bread. Scraping of butter. Fresh orange juice if well tolerated, otherwise ascorbic acid tablets. Milky coffee.
Bedtime	Milky drink and 1 plain biscuit.
Daily rations	½ ounce (14.2 g.) butter or margarine. 1 to 1½ pints (0.5 to 0.75 litre) of milk.
Do not allow	Sugar, glucose, preserves, sweets, cakes, potatoes and cereals; foods forbidden to 'gastrics'.

CONSTIPATION

Spastic constipation may be treated with the bland low-residue diet already described. Agar-agar or a methylethylcellulose preparation can supply soft bulk if required.

Atonic constipation usually responds well to the institution of a regular routine, together with a high-residue diet and plenty of fluids. Additional fat is also helpful. Excessive quantities of strong tea should not be allowed. Eggs, cheese and boiled milk should be taken in moderation. From six to eight glasses of water, with fruit juice if preferred, should be taken daily. One glass should be taken on waking, at least half-an-hour before breakfast. Many patients with chronic constipation have relied on purgatives over a long period. It is sometimes helpful if their trust can be transferred to a specific food. 'All bran' and prunes for breakfast, or fruit, fruit juice, marmalade or black treacle last thing at night are all mild laxatives and may be designated for this purpose; but the most important single factor will be the establishment of a daily regime which includes an adequate breakfast early enough to permit a regular toilet routine. The diet may be planned as follows:—

On waking	Water or fruit juice.
Breakfast	1 cup weak tea. 'All bran' and fruit, *or* porridge and syrup. Bacon or fat fish. Bread, butter and marmalade or black treacle.
Mid-morning	'Marmite' or fruit juice.
Mid-day	Meat, fish, poultry, ham, liver, etc. Potatoes—fried, roast or with added fat. Large helping vegetables *or* salad with dressing. Fruit—with cream if desired.
Tea	1 cup weak tea. Bread—preferably wholemeal. Butter. Black treacle or 'marmite'. Gingerbread or fruit or tomato.
Evening meal	Tinned fish, meat, etc. Salad, tomatoes or vegetables. Bread. Butter. Fruit.
Bedtime	Fruit juice or 'marmite'.

OBESITY

Obesity is the major nutritional problem in this country. The advance of civilization has materially lessened the amount of exercise taken by the majority of people, while presenting them with an excess of calories, mainly in the form of concentrated carbohydrates. Logically it should be possible to achieve weight reduction by calorie restriction. For about half the obese this is true, and the rate of reduction is enhanced if the majority of the calories allowed are supplied by protein and fat. For the remainder, regardless of honest endeavour and adequate supervision, little or no loss will be achieved. It is not at present possible to predict into which group a patient will fall before dietary treatment has been tried. These unpalatable facts, however, do indicate that it may be neither just nor reasonable to condemn as a glutton a patient who fails to lose weight. The fault is not always his.

Weight reduction is a long-term project. Any diet used must therefore supply adequate quantities of all nutrients except calories, and still approximate to the family food pattern. Calories should be restricted to 1000 to 1200 a day. This may be supplied by $\frac{1}{2}$ to $\frac{3}{4}$ pint (280 to 420 ml.) of milk, 3 to 4 ounces (85 to 113 g.) of bread, three good helpings of lean meat, fish, eggs, poultry, offal or cheese, $\frac{1}{2}$ ounce (14 g.) of butter or margarine and four or five helpings of fruit. Green and root vegetables may be taken freely; potatoes and legumes should be excluded. Fried foods, sugar, glucose, preserves, sweets, puddings, pastry, cakes, biscuits, cereals, thick soups, sauces, gravies, and all foods sold specifically as extras for reducing diets, should be excluded. Restricting the sodium and fluid intake is of no value unless there is a concomitant œdema.

Supervision is of vital importance in weight reduction. Fortnightly weight checks take very little time, but provide an opportunity for exhortation or encouragement. The obese child has an especial need for such help. A regime for a child should include one bottle of 'school milk' (7 ounces [200 ml.]). Most schools will cooperate by allowing fruit to be taken in place of pudding. An adequate protein intake must be insisted on, both for growth and to safeguard calcium absorption (McCance, Widdowson, and Lehmann, 1942). This is also very important when dieting to prevent excessive weight gain in *pregnancy*.

DIABETES MELLITUS

There are two basic diets used in this condition. For the obese elderly patient a reducing diet of the type already outlined will supply approximately 100 g. of carbohydrate. The diabetic requiring insulin is now most usually treated with a diet controlling the carbohydrate intake only. Instructions for such a diet should consist of a basic sheet allocating the carbohydrate throughout the day in accordance with the type of insulin prescribed, together with a list of carbohydrate exchange units. Common exchange units are five, seven-and-a-half, ten and fifteen grammes of

carbohydrate. The lot of the peripatetic patient would be much improved if agreement could be reached over a single exchange value.

The newly diagnosed diabetic should learn to weigh or measure his foods from the beginning. Later it will be possible for him to judge the size of helpings when he has a firm grasp of portion sizes. Tuition in the use of scales and measures is often necessary, since these are not always usual household appurtenances. The more liberal regimes now used mean that most of the diabetic's food can be the same as that of the family, provided care is taken to exclude the indiscriminate use of flour, breadcrumbs, gravy thickeners and sugar. Rogers (1956) provides calculated recipes and much helpful information.

Palatable, though expensive, extras which may be suggested are preserves, chocolate and cordials made with sorbitol. All these keep well and have approximately the same calorie value as their sugar-containing counterparts. Starch-reduced products are rarely necessary.

SODIUM RESTRICTION

Effective sodium restriction is difficult to achieve in the home. Sodium is present in varying concentrations in all natural foods. In some cases it may be sufficient merely to prohibit the addition of salt to the diet, but for most patients the daily sodium intake should not exceed 500 to 600 mg., i.e. approximately 1.5 g. of sodium chloride. Such a diet may be constructed from the following equivalents:—

100 mg. of sodium are contained in approximately:—

7 ounces (200 ml.) milk
2 ounces (57 g.) turkey
1 egg
2 ounces (57 g.) kidney
3 ounces (85 g.) white fish
1 ounce (28 g.) ordinary bread

50 mg. of sodium are contained in approximately:—

2 ounces (57 g.) beef, lamb, chicken, pork, veal, mutton.
2 ounces (57 g.) liver, sweetbreads, herring roes.

Average servings of fresh or frozen vegetables, fresh, frozen or canned fruits, jam, marmalade, sugar, glucose, boiled sweets, cereals, oatmeal, puffed and shredded wheat, and low-salt bread and butter may be allowed freely.

The following must be excluded:—

Salt in cooking and at table. Sodium glutamate. Indigestion mixtures and other sodium-containing medicines. Baking powder, baking soda and self-raising flour. Cheese, bacon, ham, tinned and preserved meats, salted and tinned fish, tinned vegetables, tinned and packet soups. Cornflakes and other packet cereals except those listed. Syrup, yeast and meat extracts, rennet, ice-cream. Commercially prepared cakes, biscuits and cake mixtures. Chocolate, toffee, fudge, cocoa and malted beverages.

Low-salt bread is difficult to obtain, and must be made at home unless a local baker will cooperate. Any standard recipe can be followed, omitting salt, 'improvers' and milk. The addition of a little fat enhances the keeping qualities. Cakes may be made from plain flour with the addition of one to

two teaspoonfuls per pound (0.45 kg.) of the following raising agent, which any chemist can compound:—

Starch or cornflour	1 ounce (28 g.)
Tartaric acid	½ ounce (14.2 g.)
Potassium bicarbonate	1½ ounces (42 g.)
Potassium bitartrate	2 ounces (57 g.)

The family vegetables can be cooked for a few minutes longer with salt after a portion has been withdrawn. Sodium-free salt substitutes can be prescribed in suitable cases—most contain about 60 per cent. of potassium salts. Lemon juice, vinegar, curry powder and herbs can be used to improve the palatability of the diet.

FAT RESTRICTION

In *acute cholecystitis* the diet should be primarily fluid. Fruit juice with glucose, yeast extracts, machine-skimmed milk and dry toast are suitable for the first few days.

In *chronic cholecystitis* the fat intake should be about 40 g. a day. This may be obtained by allowing roasted or grilled lean meat (with all visible fat removed), white fish, poultry, skimmed milk, together with one or two eggs per week if these are well tolerated. Fruits, vegetables, cereals, preserves, sugar and bread may be taken freely. A scraping of butter may be allowed if it is well tolerated. Fried, rich and highly seasoned foods should be excluded. The diet will be deficient in the fat-soluble vitamins, which should be provided as concentrates. When there is much flatulence it may be helpful to avoid vegetables of the brassicæ family, and to purée others. Intolerance to oranges is sometimes found.

CONCLUSION

This review of practical therapeutic dietetic measures which can be used in the home is necessarily limited. Much remains to be done in the study of dietetics, particularly in its sociological aspect. Different types of food, and the way in which they are served, are deeply rooted in the social mores. Radical changes in a patient's diet are rarely well accepted. Therapeutic measures, if they are to be successful, must be grafted on to the existing regime, when the modifications can be explained in relation to the usual practice. Such a well-designed diet can then be a most potent weapon in the physician's armamentarium.

I am indebted to the Governors of the Royal Hospital of St. Bartholomew for permission to publish this article. The opinions expressed in it are my own, and do not necessarily reflect those held by the Medical Staff of the Hospital.

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PSYCHOSOMATIC DISEASE
A NEW ANGLE

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THE problem of deciding the relative importance of psyche and soma, and of heredity and environment is insoluble, and it is not the purpose of this article to enter this battle. Rather is it to put forward a new conception of one large group of diseases, which to some extent eliminates the need to make such difficult decisions: a conception, which, if enthusiastically embraced and indiscriminately applied, will open up new vistas every day. In fact, it has led to the conclusion that many of the conditions attributed to psychological causes have little directly to do with the psyche, and would be better called diseases of dysfunction than 'psychosomatic' diseases.

SOMATIC DYSFUNCTION

In 1952, Dr. A. W. Franklin drew attention to psychological causes of recurrent alimentary upsets in children. Whilst recognizing the importance of such factors, in Luton it has become apparent, on close questioning, that an acute enteritis has often preceded a period of recurrent or chronic abdominal pain. Most of these children had had symptoms on and off for many months, and there were often psychic symptoms—bad temper, general lassitude and disturbed sleep—all of which could be explained as the sequelæ of the alimentary dysfunction. Thus this particular syndrome appeared to be 'organofunctional'; in fact, a state of disordered physiological function owing its inception to an organic disease long since passed. Treatment with a low-residue diet and alimentary sedatives to diminish intestinal hurry usually produced rapid relief.

If one chronic disease with psychic and somatic symptoms could be the sequel of past infection, what about others, and if such an unhealthy state could continue long after its original organic cause had passed—then why should not the same thing happen when the original cause was genuinely psychological? Such a train of thought led to the idea of all these diseases being considered as a manifestation of disordered physiology—the disordered state being perpetuated by the same sort of physiological controls as should keep us in a state of perfect health. Some of the cruder stabilizers of disease are recognized as the traditional and frequently met 'vicious circles'.

So, from holding the view that 'psychosomatic' diseases were in the main somatic illnesses, both initiated and caused to persist by psychological factors, I have now undergone a reorientation and look upon many of them as somatic dysfunction which will tend to persist in its own right, and may have been initiated by organic or by psychological causes. There is an interreaction between the somatic and psychological upsets, either causing the other to persist. But, just as the prime organic cause of somatic dysfunction

may be long since past, so in some the prime psychological cause is past also, and psychological symptoms are perpetuated by the somatic dysfunction.

This outlook, if properly grasped and constantly borne in mind, will at least enable one to look at many disorders from a new angle which is often of great value.

DEBILITY

Now perhaps it is worth discussing one new disease which has been 'invented'; a disease which exemplifies this concept of dysfunction of the whole child—mind and body—as he lives in his own physical and emotional environment. Some will say it is not a new disease—in fact it is not a disease at all. Again what is new about it is the enthusiasm with which it is sought out and the ingenuity with which it is treated. It can be described in a single word as 'debility', and rather than an organic disease it is a general dysfunction of the body and mind, especially of the nervous system, neuromuscular system and alimentary tract. In its fully developed state it is a combination of chronic malnutrition and chronic tiredness.

It must be recognized that both moderate starvation and moderate tiredness produce a state of restlessness and hyperactivity tending to aggravate the underlying condition. There is also a tendency to nervous tension which again leads to greater tiredness, and sleep is restless and not refreshing. In this state no prolonged effort of concentration is possible and the child suffers from a feeling of frustration because of the lack of satisfaction in personal achievement. It is the state in which so many pass their childhood, the worry and disappointment of parents and the despair of teachers.

We all recognize this state when severe, but tend to dismiss it as constitutional behaviour when mild (and even in some cases when severe). We all have various methods of dealing with it—somewhat disjointed and apparently irrational: glucose, phenobarbitone, 'Mist.Gent.Alk.', convalescence. If we include it with the diseases of dysfunction and consider it as a condition which tends to persist because of a mass of vicious circles, and attempt to interfere with as many as possible, in as many places as possible, we have the best chance of success.

MANAGEMENT

One must first exclude as far as reasonably possible the serious diseases in which debility may be the presenting symptom, though this does not necessarily need a series of investigations; a careful history and examination suffice in most cases. One thinks of such conditions as early cœliac disease, fibrocystic disease and pink disease, cirrhosis, renal failure and neoplastic conditions including 'acute' leukæmia, and infections such as tuberculosis.

Next comes the search for mild infections. Respiratory catarrh is, of course, the commonest and, even with no real evidence, sinusitis may be present. X-rays of sinuses are of little value and more is gained by looking up the nose with an auriscope and looking in the throat for an œdematous uvula. Touching the soft palate will sometimes cause it to be raised so that post-

nasal catarrh becomes visible. We treat catarrhal conditions hard, even when they are only suspected, giving full instructions and checking that they are being carried out at subsequent visits. Another mild infection to be remembered is threadworms.

The next large sphere is what might be called physical mothercraft, and is mainly a matter of rest and diet. A book could be written on this subject (and in fact many have been!). One must take a detailed history of the child's day—not necessarily believing what one is told, especially concerning the bowels, as few mothers see the motions of the older child. With regard to rest, one must remember the vicious circle of tiredness leading to a state of 'living on the nerves' which causes even more tiredness, and in turn often prevents restful sleep. The mother may often say 'he is too energetic and always on the go'. Many other factors may interfere with good sleep—late indigestible meals, drinking tea, a full bladder, and the influence of other siblings. Some of these can be altered, and a peaceful routine at bedtime is desirable if difficult to attain. Daytime sedatives can prevent a state of over-tiredness developing, and teaching of formal relaxation on the floor on returning from school is often of help.

With regard to diet, it is helpful to think of the digestion as having regressed in development. A mother can grasp the idea of going back to a toddler diet, and slowly building up again. Stuffing with glucose, up to two pounds per week may help as a temporary measure, costs the National Health Service nothing, and mothers love doing it. Even in these days we don't neglect constipation—we may produce it with the toddler diet!

Apart from the physical we have the emotional environment to explore. The vicious circles are active in this sphere and an irritable nagging mother may only be like this because she feels helpless and guilty. The naughty child is so often punished when what he is crying out for is real interest and affection. Although vicious circles are responsible for the persistence of the unsatisfactory state, they have a virtue: the undoing of one may lead to a chain reaction of improvement. The mere interest that has been taken in the child by bringing him to hospital and the carrying out of any form of treatment by the mother are of value. Start the family on the right road and the results may be startling. Even the relief of reassurance after thorough consideration may be enough.

CONCLUSION

Thus by considering the whole child and his environment, by advice concerning rest and diet, by judicious use of drugs and eradication of focal sepsis we gradually try to salvage the child from his sunken condition.

We all do all of these things, but do we think of them as rational forms of treatment of a recognizable clinical condition? I certainly used not to do so—and since my change of attitude the satisfaction of treating a common pædiatric problem with some semblance of a rational system has been great—and I like to think I have been doing more good.

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THE LABORATORY ASSESSMENT OF ALUMINIUM GLYCINATE IN THE TREATMENT OF PEPTIC ULCER

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A FINAL judgment on the merits of a gastric antacid can only be given from clinical experience, but studies in the laboratory can be a useful preliminary to clinical trials.

THE IDEAL ANTACID

Some of the features desirable in an antacid for use in the treatment of peptic ulcer can be summarized as follows:—

(1) The substance taken by mouth should reduce the acidity of the gastric contents to an arbitrary level, say pH 4. This is a thousand times less than pH 1, the maximal acidity of the gastric secretions, and at this level four-fifths of the peptic digestive activity is abolished. Large overdoses should not make the gastric contents more alkaline than the natural secretions of the intestine, say pH 8. The dose which the patient can conveniently take must contain sufficient antacid power to counteract the acid secreted by his gastric mucosa, which may be up to 30 mEq. per hour or more.

(2) The substance should react quickly with the acid in the stomach in order that the antacid may not be transferred from the stomach to the intestine before it has produced its desired action. When an antacid is taken by mouth on an empty stomach about 90 per cent. of the dose has often left the stomach within thirty minutes (Staffurth, 1953).

(3) The antacid should have as little influence as possible on the hydrogen-ion: hydroxyl-ion balance of the body.

(4) The substance should be palatable and not disturb bowel action.

(5) Ideally the continuous secretion of acid of gastric juice should be slightly exceeded by a continuous intake of antacid. Under these conditions there will be a minimal amount of unused antacid in the stomach and a corresponding minimal loss of antacid into the duodenum. In principle this ideal can be achieved by giving a continuous drip by tube into the stomach. This is not a practical method of treatment in ambulant patients, but it can be achieved by the sucking of antacid tablets (Douthwaite, 1957).

The present study of aluminium glycinate ('prodexin') has been concerned with:—(1) The range of antacid action *in vitro*. (2) The antacid action in patients with duodenal ulcer. (3) The relation between the dose and the risk of alkalosis.

THE LOCAL ACTION OF ANTACIDS

In vitro.—The amount of acid in the stomach varies from time to time and

from person to person. A patient taking an antacid is not aware of the amount of acid in his stomach, and in his desire to relieve pain by reducing the acidity of the gastric contents, he will be inclined to take more antacid than will merely raise the pH of his gastric contents to 4. Because overdosing with antacids is probably the rule rather than the exception an antacid ideally should not raise the gastric pH outside the desired range 4 to 8 even when gross overdoses are taken.

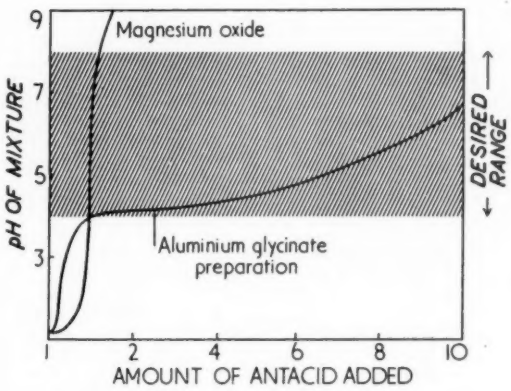

FIG. 1.—*In vitro* comparison of antacid action of magnesium oxide and aluminium glycinate.

These points may be appreciated from fig. 1 which shows the results of a comparison *in vitro* of the antacid action of magnesium oxide, one of the most powerful of antacids, and of aluminium glycinate a recently introduced compound.

The amount of magnesium oxide needed *in vitro* to raise the pH of 80 ml. of a solution of N/10 hydrochloric acid to 4 was determined using a glass electrode to measure pH, and this amount of magnesium oxide was regarded as the 'minimal effective dose'. A further quantity of magnesium oxide equal to half the 'minimal effective dose' was then added to the same portion of acid and the alkalinity was seen to rise to pH 9: well outside the desired range between 4 and 8.

The experiment was then repeated using another portion of acid and aluminium glycinate with the small proportion of magnesium carbonate required to prevent constipation in clinical use.

The pH of the mixture was taken two minutes after adding the portions of antacid. The 'minimal effective dose' of aluminium glycinate was determined in the same way as it was with magnesium oxide. Adding ten times this amount of glycinate preparation to the same portion of acid left the pH within the desired range between pH 4 and 8. This may be seen from fig. 1, which shows the relation between the number of minimal effective doses and the pH of the mixtures of acid and magnesium oxide and mixtures of acid and aluminium glycinate. It is clear that the aluminium glycinate is an effective but safe antacid from this point of view.

In vivo.—The following studies were made to determine whether aluminium glycinate, which was a promising antacid *in vitro*, had an effective antacid action on the gastric contents. The acidity of the gastric contents was first determined when the patients were not receiving antacids. Then they were given aluminium glycinate as a single dose or as tablets which they sucked, and the acidity of the gastric contents was again measured.

All the patients were men with a diagnosis of duodenal ulcer except one

patient who had a prepyloric ulcer. Patients were not tested with antacids unless their gastric contents were more acid than pH 1.8 during a control period without antacids. They were given their ordinary food before the tests except that any meat in their meals was minced. They were not

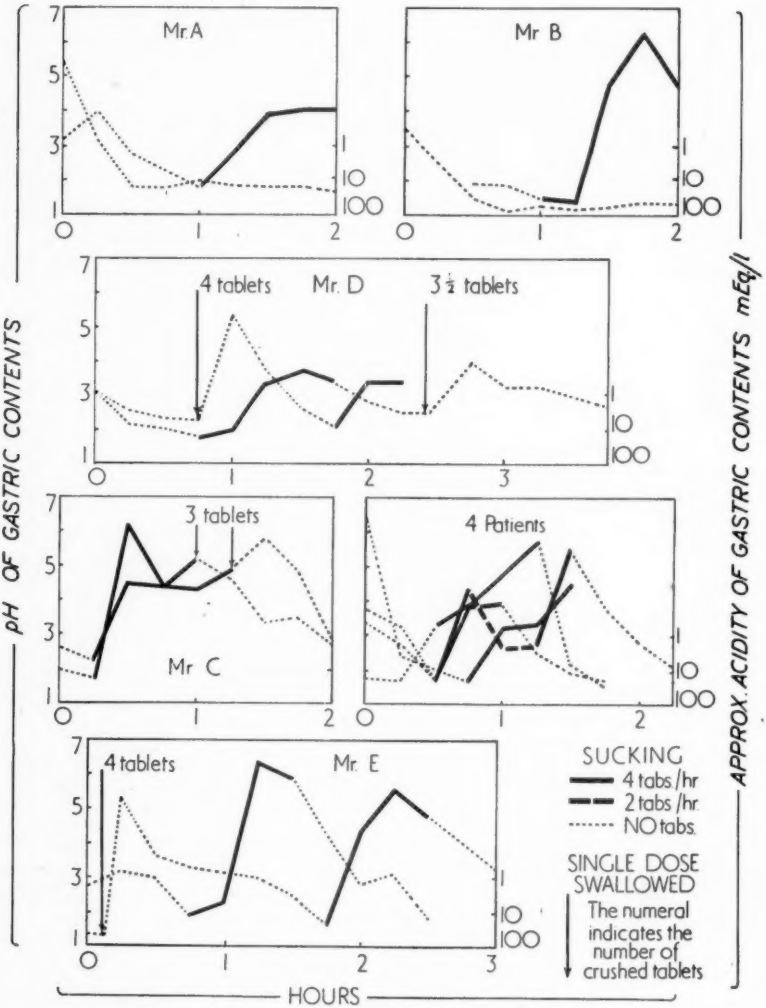

FIG. 2.—Effect of aluminium glycinate on gastric acidity.

receiving anti-secretory drugs at the time of the tests. Control experiments with boiled sweets have shown that the amount of saliva swallowed during the sucking of tablets has little influence on the acidity of the gastric con-

tents under these conditions (Douthwaite and Batty Shaw, 1952). The gastric contents were sampled through a tube with a 5-mm. bore, care being taken to withdraw a considerable volume of the contents. Every fifteen minutes, about 5 ml. of a sample were taken for determination of the pH with a glass electrode and the remainder was returned to the stomach.

The results are shown graphically in fig. 2. It may be seen that, in general, sucking four tablets of aluminium glycinate an hour raised the pH to 4 but did not carry it beyond pH 7. On the other hand, intermittent doses of aluminium glycinate, marked by vertical arrows, were less effective in maintaining the pH of the gastric contents above 4 continuously. The graphs indicate quite clearly that continuous sucking gives continuous control of acidity except in the instance of patient D who had pyloric stenosis. In this patient the doses of antacid were insufficient to influence the large volume of gastric contents, which was 750 ml. on some evenings.

SYSTEMIC EFFECTS OF ANTACIDS

Any continuous antacid treatment of peptic ulcer raises the possibility of inducing alkalosis but it is probable that the danger of this has been exaggerated. It has been shown that in patients with normal renal function as much as 140 g. of sodium bicarbonate may be given daily without harm (van Goidsenhoven *et al.*, 1954). On the other hand, many people take antacids, including possibly patients with renal function impaired by either vomiting or renal disease, and large doses of antacids may expose such persons to the risk of alkalosis. It is therefore desirable to estimate this risk of alkalosis as part of the assessment of the antacid.

Ideally an antacid should take up acid in the stomach so as to change the pH of the contents until they are less acid than pH 4. When the gastric contents with the antacid go into the intestine the relative alkalinity of the intestine should cause the dissociation of the combination of acid and antacid formed in the stomach. The acid liberated from the antacid would then be neutralized by the alkaline secretions of the gut and the original antacid would be excreted unchanged in the stools. Such an antacid would in no way disturb the 'hydrogen-ion: hydroxyl-ion balance' of the body.

There are two ways in which an antacid may fail to live up to this ideal. Either the combination of antacid and acid formed in the stomach may fail to be dissociated completely in its passage through the gut so that some of the acid secreted by the stomach may be lost in the stools in combination with the antacid, or the antacid itself may be absorbed. In either event the result will be the same in that there will be less acid to excrete in the urine or the urine may become actually alkaline.

Urine was collected for about 16 successive days from four students. From the sixth to the ninth days inclusive they were each given 20 g. of aluminium glycinate powder by mouth in divided doses. Changes in the urinary outputs of acid from the sixth day until the outputs were judged to have returned to the control level were ascribed to the aluminium glycinate; the last few days of the period of collection

served as a further control. It was found that the deficits of urinary acid were 1.9, 1.3, 1 and 0.5 mEq. acid/g. aluminium glycinate for the four subjects.

As aluminium glycinate is available for prescription compounded with magnesium carbonate it seemed desirable to determine the urinary deficit while taking this preparation. Collections were made for twelve days in two subjects, each subject taking 15 tablets of aluminium glycinate compound

Subject	mEq. urinary deficit/g. aluminium glycinate		Gastric secretion/30 min. (mEq. H +)
	PO_4	Acid	
W	0.75	0.5	0
I	1.5	1.0	4
H	2.9	1.3	11
C	3.2	1.9	8
P	1.0	0.25	0
E	4.0	2.0	5

TABLE I.—Data on deficits of urinary acid, of urinary phosphates, and on gastric secretion in subjects taking aluminium glycinate.

daily in divided doses for four days. The acid deficits in these two subjects were 2 and 0.25 mEq. of acid per tablet. Each tablet contained 0.9 g. of aluminium glycinate and 0.1 g. of magnesium carbonate. The wide difference between the results for these subjects was of interest because the subject with the lower deficit had almost complete gastric anacidity, whereas the other subject was known to secrete much acid in response to test meals. Table I shows that the deficits of acid in the urine were roughly proportional to the secretory responses to test meals. A corresponding deficit in the urinary output of phosphate was also noted. The methods used were those of Hunt (1954, 1956).

DISCUSSION

It may be seen from the titration curve for aluminium glycinate with the small amount of added magnesium carbonate that, although this preparation is effective in reducing the acidity of the gastric contents, it is unlikely to make them more alkaline than the plasma even when overdoses are taken. On general principles it might be supposed that the mechanism responsible for maintaining the integrity of the gastric mucosa in the face of the high acidities of the gastric contents would have been evolved in such a way as not to be equally effective in the face of high alkalinities. This is the basis for a preference for antacids which do not make the gastric contents more alkaline than pH 8.

In the present experiments the maximal urinary acid deficit encountered was about 2 mEq. acid/g. of aluminium glycinate, whereas the gastric neutralizing power to pH 4 is about 7 to 8 mEq./g. aluminium glycinate. This should be contrasted with the findings for a soluble antacid such as sodium bicarbonate whose power of producing a urinary acid deficit is equal to its neutralizing power. Should 2 mEq. per tablet of aluminium glycinate compound turn out to be the maximal urinary acid deficit, it

should be possible to give 25 tablets of the aluminium glycinate compound daily without exceeding the normal production of metabolic acid by the body so that on a normal diet the possibility of alkalosis can be almost entirely ruled out. Normal kidneys have the power to excrete alkali corresponding to that which would be absorbed from about 300 tablets per day.

The *in vitro* examination of the antacid action of the aluminium glycinate preparation clearly shows that it does not, even when taken in excessive amounts, make the gastric contents more alkaline than the plasma although it is a sufficiently powerful antacid to contain a neutralizing power to pH 4 of 7 to 8 mEq. per gramme. This usually gives effective control of acidity with a dose of 4 tablets an hour. In principle it is clear that a dose of antacid will be more effective when given continuously to match continuous secretion than when given as a single dose intermittently. This is borne out by the tests in patients.

SUMMARY

(1) A comparison *in vitro* of the antacid action of magnesium oxide and an aluminium glycinate preparation showed that the aluminium compound even in gross excess did not, in contrast to magnesium oxide, raise the pH of the gastric contents above that of the plasma.

(2) Tests in patients with duodenal ulcers showed that the continuous sucking of four tablets of aluminium glycinate preparation an hour raised the pH of the gastric contents to 4. Intermittent dosage with equal amounts was less effective in giving continuous antacid action.

(3) In the present experiments aluminium glycinate produced an acid deficit in the urine corresponding to, at the most, one-quarter of its antacid power measured to pH 4. This would allow a dose corresponding to six hours' effective antacid control per day without any danger of alkalosis. On this basis patients with normal renal function have the power to excrete alkali corresponding to an oral intake of about 300 aluminium glycinate tablets daily.

We wish to thank Professor J. D. Pathak, Tessa Holman, A. P. Hopkins, R. K. R. Innes, Heather Lachlan, J. F. Murray, L. M. Razavi, and M. S. Wirk who took part in these experiments.

We are indebted to Messrs. C. L. Bencard Ltd. for supplies of aluminium glycinate powder and of tablets of aluminium glycinate compounded with magnesium carbonate.

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RUNNER'S FRACTURE

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Pain in the ankle is a common complaint amongst athletes and, when the physical signs are trivial, it is tempting to diagnose a pulled muscle or a sprain. Unfortunately, it is in just these circumstances that a stress fracture of the fibula may be present, and unless it is recognized at once and treated there will be a long and unnecessary period of pain and disability.

Fig. 1. — From a tracing of superimposed radiographs of the leg taken during forcible contraction of the calf muscles and during rest. The bowing of the fibula is shown.

DEFINITION

Stress fracture, which may occur in many bones, is an incomplete fracture. Injury occurs slowly and produces a considerable healing reaction in the surrounding bone. A well-known example is the so-called march fracture of the metatarsals. The actual fracture is often minute and cannot be seen by ordinary radiological methods; it becomes apparent only several weeks after the onset of symptoms when callus has formed and bone is sclerosed.

Fifty stress fractures of the fibula were treated at the Athletic Clinic of the Middlesex Hospital between 1952 and 1955 (Devas and Sweetnam, 1956), and Burrows (1948), Griffiths (1952) and, in an older age-group, Richmond and Shafor (1955) have reported many others.

MECHANISM

The reason for the injury is not understood but it is known that it occurs in bones subjected to prolonged and usually unaccustomed stress. This is clear in the case of the metatarsals which are subjected to a direct weight-bearing force. The fibula is not a weight-bearing bone and therefore another mechanism must be sought.

It is possible that movement of the fibula caused by muscle action is responsible. We have shown elsewhere (Devas and Sweetnam, 1956) that contraction of the calf muscles causes the fibula to bow towards the tibia,

the bone springing back to its resting position when the muscles relax. This produces a 'to and fro' movement of the bone when the foot is forcibly and repeatedly plantar-flexed This happens in running and the harder the surface the greater the force because of the need to cushion the harder footfall. The movement of the fibula in these circumstances is shown in fig. 1. The bone bends most near the fixed point at its lower end. The upper end, where there is a synovial joint, is less firmly fixed so it is not surprising that fracture is common in the lower part of the bone just above the ankle. Those who train on a hard surface more often develop this condition. City-dwelling athletes who train by running on roads make up a large proportion of the sufferers.

FIG. 2.—The site of fracture is visible in this patient. Photograph taken several weeks after the onset of symptoms.

DIAGNOSIS

There is always complaint of pain on the lateral side of the ankle. It may be severe but it never prevents walking, though it may be with a limp. The onset is usually insidious, but may start suddenly, often at a time of unaccustomed activity, which for an athlete means inadequate training. Young athletes are particularly prone but no age-group is exempt.

When examined shortly after the onset of symptoms the only abnormal physical sign may be a point of tenderness over the fibula just above the lateral malleolus. In more advanced cases swelling with a suggestion of œdema is seen (fig. 2). It is important to appreciate that no fracture is visible in x-rays taken within the first few weeks. It is because of the 'normal' radiological appearance that the symptoms are often attributed to chronic sprain or some other non-bony lesion. If x-rays were taken three weeks later there would be evidence of a stress fracture. The radiological appearance varies with the severity. In mild or early cases there is only slight periosteal reaction. Later, in patients who have failed to rest, a line of sclerosis, probably representing circumferential callus formation, crosses the bone at the level of fracture. Sometimes an actual fracture line is visible but often only through the lateral cortex of the bone (fig. 3). At the stage when periosteal reaction only is visible a mistaken diagnosis of osteomyelitis or even bone sarcoma may be made.

Pain and local tenderness persisting, often for as long as four months, is

the only disability. During this period running is, of course, impossible except at the price of considerable pain, and there is often a limp when walking. The symptoms slowly diminish and when the lesion is fully healed the pain goes and athletic activity can be resumed with risk of a return of the symptoms.

FIG. 3.—Stress fracture of the fibula showing the late radiographic changes. When first seen shortly after the onset of pain, x-rays of this patient's ankle were reported as normal.

TREATMENT

Training on a hard surface, particularly by those who have already had such a fracture in the past, should be prohibited. There is some evidence that the incidence is reduced if shoes with thick sponge rubber soles are worn during road training.

The essential treatment is the immediate enforcement of rest from athletics. Local comfort is given by bandaging the leg from toes to below knee with elastic adhesive strapping. Many athletes and trainers believe that the symptoms are best treated by 'running it off', but there is no doubt whatsoever that this makes the condition worse and greatly increases the period of disability. On the other hand, early diagnosis with absention from sport greatly reduces the length of symptoms.

Return to full activity or athletic training should only be allowed when the fracture is clinically healed, as shown by freedom from pain and local tenderness, and absence of pain on 'springing' the fibula towards the tibia. Graduated training is then allowed so long as there is no recurrence of symptoms.

SUMMARY

The condition of stress or fatigue fracture of the fibula is described and its frequency emphasized. Its importance as a cause of pain in the ankle and the reasons for the frequent failures in diagnosis are discussed.

The mechanism whereby a stress fracture is produced in this non-weight-bearing bone is postulated.

The treatment of the condition is outlined.

We wish to express our gratitude to Mr. Philip Wiles for his encouragement in the study of this condition and his advice in the preparation of this article.

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UNEXPECTED ULCERS

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GASTRIC and duodenal ulcers are not uncommon among elderly patients; yet they often remain undiagnosed until necropsy.

TWELVE CASES

We have recently had twelve patients, aged between 65 and 84, whose peptic ulcers were unsuspected during life. None of them showed the customary pain-time-food sequence which is often found in younger patients. Only one seemed suitable for a barium meal, and he vomited before the barium entered the stomach. Six of the twelve had no digestive-tract symptoms whatsoever, so that discovery of the ulcers at necropsy came as a complete surprise. Four patients died following hæmatemesis. Three of these had one large hæmorrhage, whilst the other had three smaller losses before his death. Two of the patients vomited on several occasions, but were unfit for complete investigation on account of their poor general condition.

Only one case was admitted to hospital on account of a digestive disorder. The provisional diagnoses of the remainder included rheumatoid arthritis, cerebral thrombosis, Parkinson's disease, bronchiectasis, suspected pulmonary tuberculosis, mental confusion, cardiac failure, osteoarthritis and 'senile weakness'. As is customary in the aged, most of the patients showed multiple lesions: the lady with rheumatoid arthritis, for instance, had no less than thirteen separate lesions! Nevertheless, the size of their ulcers at necropsy was often quite considerable.

One measured 2 inches by 1 inch (2.5 × 5 cm.), another was 1 inch by 1½ inches (2.5 × 3.75 cm.) and a third had deeply infiltrated the pancreas. Another woman of 78, who died suddenly after being up and about, showed a stomach divided into three unequal compartments by two large scars which had deformed the organ.

GENERAL INCIDENCE AT NECROPSY

It is interesting to compare this small series of cases known clinically with the general morbid anatomy of old age.

Among 2,221 subjects examined by Piggot (Howell and Piggot, 1953), gastric ulcer was the fatal lesion in 52 and duodenal ulcer in 39. This meant that gastric ulcer or its complications came twelfth among the causes of death, whilst duodenal ulcer or its complications was sixteenth. When the non-fatal lesions are included, however, the incidence is much higher. Some 54 had incidental gastric ulcers and 19 had incidental duodenal ulcers. The scars of past ulcers were present in the stomach in 88 subjects and the duodenum in 19 cases. Hence the total frequency of peptic ulceration amounts to 271, which equals 12 per cent. of this large series.

CONCLUSION

It would therefore appear that peptic ulcers are far more frequent among elderly patients than might be expected. Since they do not always give rise to typical symptoms, their presence may be overlooked. Thus, one of the problems of geriatric practice, differing from the usual run of general medicine, is the unexpected ulcer.

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GENERAL PRACTITIONERS' FORUM

LARGE SPLEENS AND LIVERS

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Aden

One of the attractions of the work in the Colonial Service is the practice of medicine in places where the pattern of disease is quite different from that found in Great Britain, and where there is still plenty of room for basic clinical research supplemented by such auxiliary scientific aid as the medical officer can supply himself. Lack of the refinements of medical science which are available at home in some ways adds to the stimulus of personal inquiry, as an artist's materials and tools limit and yet inspire the use he makes of them. Be that as it may, the doctor overseas who finds interesting clinical problems and does no more than wait till his department has provided the standard of auxiliary services of laboratory and x-rays that he has known at home, may well wait for years.

THE PROBLEM IN CYPRUS

Anæmia had always appealed to me as one of the few physical signs which could easily be measured. Hence to Cyprus in 1939 came, with my other impedimenta, a Sahli hæmoglobinometer. Not long after arrival there, a visiting hæmatologist's enthusiastic (but vain) search for nutritional macrocytic anæmia set me off in earnest. He had only left a week when we admitted our first macrocytic case to Paphos Hospital, and my interest in anæmias overseas has subsequently never waned.

In point of fact, macrocytic anæmias, though definitely present, turned out to be uncommon, whereas childhood anæmias from recurrent malaria in the villages abounded. An island-wide control of anopheline breeding had just reached fruition, and there seemed every likelihood that the malaria reduction would be followed by corresponding elimination of childhood anæmia and splenomegaly. But every now and then we would see a child with a gross splenomegaly, some hepatomegaly, and anæmia, whom we would diagnose as suffering from 'chronic malaria', but who would show no parasites nor the slightest improvement on prolonged antimalarial treatment. This might be kala-azar: and having a commendable, but unnecessary, fear of stabbing spleens with a needle, I set to work at sternal puncture, but no Leishman-Donovan bodies could be found. So, rather in the fashion of a bird-watcher faced with a stranger, Vaughan's 'Anæmias' was procured from home and systematically searched until it was plain that one disease fitted the clinical picture, and one only.

This was Cooley's erythroblastic anæmia, not hitherto recognized in Cyprus, although it had been diagnosed elsewhere in Cypriots. It provided a satisfying subject for clinical inquiry, to be carried on alongside the varied

routine duties of a district medical officer, during my remaining six years in the island.

COOLEY'S ERYTHROBLASTIC ANÆMIA

The features of the disease are by now well known. It is a congenital blood dyscrasia, recently shown to consist basically in the persistence into childhood of a proportion of fœtal hæmoglobin which differs chemically from adult hæmoglobin. In heterozygotes the blood seems to function physiologically, and the presence of the so-called 'trait' is indicated by the abnormal resistance of the cells to hæmolysis by hypotonic saline. But when a homozygous child is born (both parents being heterozygous) the disorder affects the whole erythron of the child. Usually normal at birth, within the first two years of life a persistent anæmia develops: the child is a pathetic sight, and a tragedy for the parents, as the stunted feeble caricature may live for years before finally succumbing. The abdomen enlarges to contain the massive spleen and liver, the configuration of the face and skull changes to give a Mongoloid appearance, and the dyspnœa on exertion excludes the child from normal play and enjoyment of life. Finally, before puberty, heart failure with œdema, or intercurrent infection brings the young life to an end. Very rarely cases survive to adult life as chronic invalids: we tried to employ one as a housemaid but had, with regrets, to admit that 50 per cent. hæmoglobin meant 50 per cent. work and she returned to her village.

Although intriguing as a subject for clinical investigation, there was little compensation for doctor or parents in the matter of treatment. Blood transfusion produced only a temporary relief and raised the insoluble question as to how far it is right that a human being should, or could, live indefinitely on blood made for him by other people.

During some of the transfusions, opportunity was taken to observe the rate of destruction of the transfused cells, using Ashby's differential agglutination technique: normal donors' cells appeared to last as long in a Cooley's child as in normal people. The work might be described by another of my overseas colleagues as 'slop-basin pathology', being done in the evenings in a box-room at home, the centrifuge being an electric fan mounted horizontally with unauthorized slots cut in the blades, but it was a better hobby than photography or billiards at the club!

In the country districts before the eradication campaign eliminated anopheline breeding, it was usual to do an annual survey of schoolchildren to determine spleen and parasite indices. It was simple enough to put a drop of blood from each child into a test-tube containing 0.3 per cent. saline. Normal cells are clearly hæmolysed at once but cells from people with the Cooley trait are not, and the solution remains cloudy. With little expenditure of time or energy, the results gave a good indication of the incidence of the Cooley trait: it came to 17 per cent. for Greek and 21 per cent. for Turkish Cypriots. Unfortunately this was just at the end of my stay in the island, and, before it had been suggested that in Africa the sickle-cell dyscrasia (like Cooley's due to an abnormal hæmoglobin) antagonized

malarial infection, blood slides were soon disposed of, and with them the chance of discovering any significant differences in the incidence of malaria in people with, and in those without, the Cooley trait. The only new contribution to the clinical description of the disease I could make was that in Cyprus premature closure of the fontanelle in an infant was pathognomonic of Cooley's anæmia.

THE PROBLEM IN ADEN

In 1947, the scene of my hæmatological interests changed: from Cyprus to Aden. Anæmia is widespread throughout the tropics, and I had no need to apprehend a deficiency of material. What was my surprise not long after arriving, to find the same syndrome before my eyes—children with large spleens, large livers, and anæmia! I had heard of a case of Cooley's anæmia in an Egyptian child, but never in Arabs. Could it be here too?

No, indeed it was not. There was, to begin with, no decrease in red-cell fragility. There was no familial incidence, many of the patients were adult, there were no bone changes, no adenopathy, and the marrow was normal in appearance. There was one other important feature in common with the Cypriot children, however—no-one knew what the disease was, and certainly all treatment was ineffective. In Aden the tempo of a medical officer's life was more rushed: the patients came from remote and inaccessible places, scattered over Aden Protectorate and the Yemen. One could not visit their homes in the latter country, and the complicating factors in the shape of other diseases were many. Neither books on tropical medicine nor those on hæmatology seemed to include this syndrome—looking at first so like Cooley's, yet actually so different. It certainly seemed that it would take a long time to solve even the problem of diagnosis. Post-mortem examinations were very hard to come by.

It took time even to decide how to begin. As elsewhere in places where there are always more patients than facilities to deal with them, one cannot do a large number of routine tests and investigations on a series of patients out of scientific interest only. The laboratory staff have enough to do with routine work, and beds are urgently needed for more seriously ill people. Admittedly we had a laboratory in the hospital (as soon as we had designed and built it!), and not merely a spare-room at home, but in Cyprus the beds and staffing roughly corresponded to the need. In Aden, the hospital was (and is) only saved from submerging beneath the flood of human suffering from inland by the deficiency of transport between the villages and the metropolis. So six years passed before it was possible to collect data enough to hazard a guess at the pathogenesis of this 'South Arabian Syndrome': and of these six years, the first half was needed for deciding how to define the problem, let alone solve it.

THE 'SOUTH ARABIAN SYNDROME'

Could it be chronic malaria? Unlikely, as we rarely found parasites, the splenomegaly was often enormous—and antimalarial treatment did no good.

It must be kala-azar, and by now, with less fear of puncturing large and obviously tough spleens, a search for Leishman-Donovan bodies was begun. As in Cyprus, a few cases of genuine kala-azar were ultimately discovered, but nearly always the results were negative: one can miss L.-D. bodies in an occasional genuine kala-azar but not over and over again. So it could not be kala-azar. Was it a primary blood disease? The blood was neither macrocytic nor microcytic, and the marrow was normal; there was little evidence of hæmolysis. There was no satisfaction to be had from calling it 'Splenic anæmia'—so what? Perhaps a reticulo-endothelial disease. But why were the lymph nodes never enlarged?

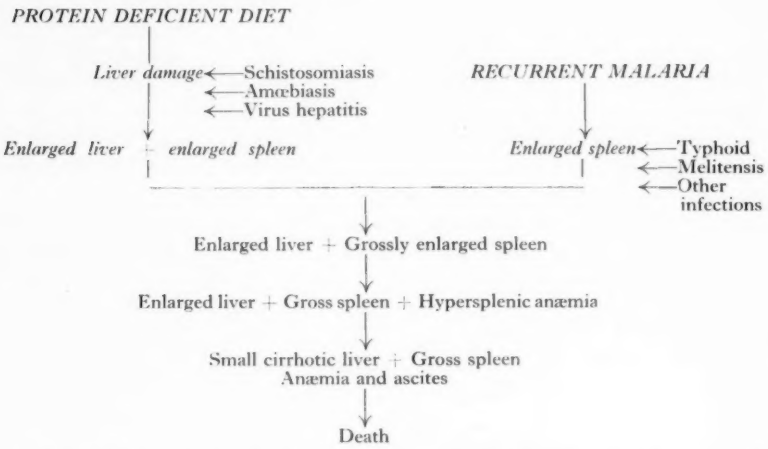
Schistosomiasis remained. Most of these patients come from desert wadis where both kinds of bilharzia abound. And there was the precedent in Egypt for attributing a gross splenomegaly to infection of the liver by *Schistosoma mansoni*. But, as time went on, there were good grounds for suspecting that this was certainly not the whole story. Many patients pass *S. mansoni* in the stools with no ill-effects at all—not even loss of occult blood. Heavy infection and damage to the intestinal mucosa seem extremely rare in Aden; in any case, treatment had no effect on the syndrome. The publication of Gelfand's work on schistosomiasis in Rhodesia showed conclusively that cirrhosis of the liver there was no more common where *S. mansoni* abounded than where it was absent, and that there was very little justification for accusing it of causing 'Egyptian splenomegaly'. By now, too, the paramount role of nutrition in liver disease in the tropics was being emphasized. There was no doubt that these people were malnourished.

Finally the opportunity came for making a reasonably thorough investigation of each patient who came in to hospital with large spleen, large liver and anæmia: this included examination of the peripheral blood as well as bone marrow, splenic puncture blood and liver biopsy material. A new feature was noted in the course of this more detailed study: i.e. that the hepatic enlargement often seemed to affect the left lobe more than the right.

COMPLETING THE JIG-SAW

And after all the data had been gathered together it still seemed almost impossible to fit the jig-saw together: apart from cases of the fully developed syndrome, one still had to account for partial syndromes, one of the triad missing: indeed the syndrome shaded off into normality in every direction. The final step in making sense out of a collection of scientific data is often not an exercise of logic but a reorientation of a mind which has been brought up to think in one framework of ideas: it must learn to put the same thoughts together in a different way. In the background of a mind educated for European medicine is the horror of a double diagnosis—a laudable devotion to the principle of economy in scientific hypothesis—but a snare and a delusion in the tropics where multiple etiology of sickness is so common. Not a double diagnosis, but a double, and intertwining, etiology might explain this syndrome.

These people, living in perpetual poverty, undoubtedly consume a diet qualitatively deficient in protein. Both in the experimental animal and in man this can ultimately so upset liver metabolism that structural changes result and terminate in cirrhosis. Early on, in almost any of those developing liver disorders, comes splenic enlargement, and at death moderate enlargement is the rule. Suppose now that in the course of this process the body acquires a disease which normally causes splenic swelling, in particular malaria. Surely the two spleen-enlarging processes will combine and cause an enlargement greater than that to be expected from either singly? And also, when the second stimulus is removed—with the termination of the malarial attack—the spleen will probably not return to its original size as it could do if the liver circulation were normal. In other words, the gross splenomegaly is accounted for by postulating previous damage to the liver cells by chronic protein malnutrition. The course of the whole disease can be summarized diagrammatically:—



The whole process takes such a large proportion of a child's or man's life that it is not possible to follow the development of the syndrome in its entirety in any one person: only by seeing dozens of them at different stages can one mentally build up a picture of the whole disease. It is, in fact, an example of the pathology of the pathological: in well-nourished people in Britain we normally study the pathology of the physiological, and our textbooks describe the reactions of a healthy body to invading organisms. In poverty-stricken communities, such as exist on the edge of the desert in South Arabia, the body invaded by bacteria or protozoa is already abnormal for there have never been the proper and continuous supply of amino-acids and other essentials for its development and growth. The resulting pattern of disease is therefore modified. (Will someone please write a textbook of pathology for the tropics with this in mind?)

Although these two syndromes of anæmia, splenomegaly and hepatomegaly, have been the commonest in Cyprus and Aden, others, more ordinary, have presented: kala-azar has been mentioned, the occasional leukæmia, cardiac failure with anæmia, favism, and lastly sickle-cell anæmia.

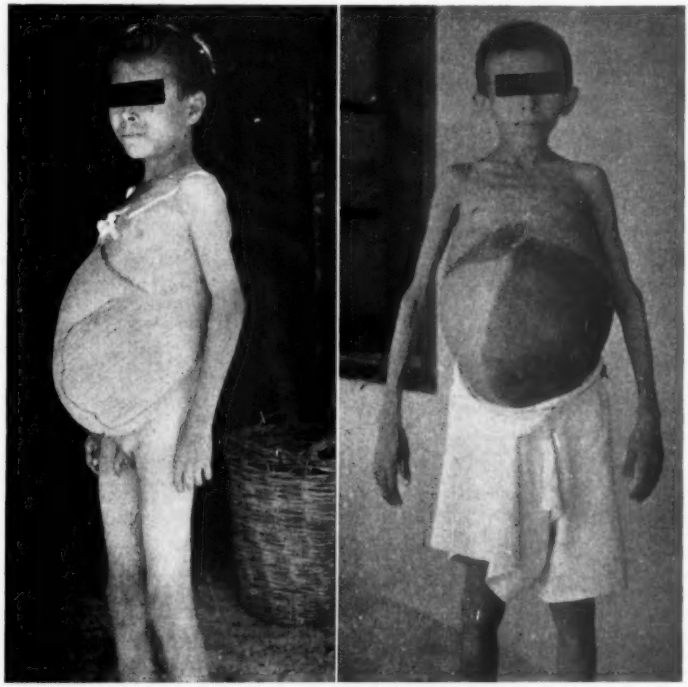


FIG. 1.—(a) Cooley's anæmia in a patient aged 21 (Cyprus 1942). (b) South Arabian syndrome in a patient aged 20 (Aden, 1956).

Two children with the latter disease have been found in Aden during the last few months, and, although it has been known for some time that the trait occurred in South Arabia, it is interesting to see the fully developed disease, and compare and contrast it with Cooley's anæmia in Cyprus (fig. 1).

POSTSCRIPT

The inclusion of a Sahli hæmoglobinometer in the luggage of the D.M.O. Paphos in 1939 was an unexpected stimulus to clinical observation. It is broken now and our routine is the use of Wintrobe's hæmatocrit—we have a proper centrifuge and laboratory assistants to prepare the oxalated bottles. My Powell and Lealand No. 1 Stand (1873) has been displaced by a more modern instrument, and we possess a photoelectric colorimeter. It may have been 'slop-basin' pathology and 'backwoods' medicine, but I would not have chosen instead any of your specialized careers at home.

WHOOPING-COUGH IN GENERAL PRACTICE

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It is recognized that whooping-cough is a frequent cause of chronic lung disease, but the actual frequency of complications in unselected cases, as seen by the general practitioner, has not been accurately ascertained. Previous series of cases have been those admitted to hospital.

SCOPE OF INVESTIGATION

One hundred consecutive cases of whooping-cough occurring in my practice between November 1952 and April 1955 are described. All were treated at home and followed up until April 1957, or until they were clinically and radiologically clear. After the acute phase of the disease, straight and lateral x-rays of all cases, with the exception of four who could not be traced, were undertaken and reported on by a radiologist.

INCIDENCE OF RADIOLOGICAL FINDINGS

Shadowing was noted radiologically in 43 per cent. of cases. In 29 per cent. the shadowing was slight and had usually cleared by the time the second x-ray was taken: i.e. within one to two months. In 16 per cent. there was marked consolidation and collapse, but 9 per cent. of these cleared rapidly with treatment. In 7 per cent. recurrences of pulmonary complications were detected both clinically and radiologically. In all of these cases (7 in all) there was a marked tendency to bronchospasm, whilst in five there was a strong family history of allergy. Only two cases have been considered as being possible candidates for bronchiectasis.

Despite the well-recognized gravity of whooping-cough in infancy, the incidence of radiological shadowing was lowest in this age-group (table I). This has been noted before (Kohn *et al.*, 1944; Nicholson, 1947; Lees, 1950). The highest incidence of shadowing was found between the ages of one and two (67 per cent.), but in only one case was this marked, and in all it cleared rapidly. It was also high between the ages of two and three (50 per cent.), and in this group a large proportion had marked radiological changes. It is noteworthy that the lower lobes were by far the most commonly affected, the right being involved as often as the left (table II).

The severity of the whooping-cough bore no relationship to the extent of radiological changes, and careful clinical examination did not always detect collapse, particularly of the right middle lobe. Doig (1946) has emphasized the importance of radiology for the detection of atelectasis, particularly segmental atelectasis. There were no deaths in the present series.

TREATMENT

The main form of treatment used was effective postural drainage combined

with chest percussion. As the lower lobes were most often affected (tables II, III), it was carried out in the completely inverted position.

This was demonstrated to the parents with the child leaning out of bed, or over the arm of a chair with his hands on the floor. The parents were encouraged to carry out chest percussion with the child in this position, not only during the bouts of coughing, but especially the first thing in the morning, when the accumulated secretions of the night could be cleared. It was also undertaken before each meal, as it was found that the child was much less likely to vomit after this, and thus the general nutrition was maintained.

This treatment was continued persistently until all radiological and clinical signs in the chest had cleared.

It is well recognized that the broad-spectrum antibiotics are of little value

Age (years)	No. of cases	Those with shadowing	Those with marked consolidation and collapse
Under 1	8	1 (12%)	None
1	9	6 (67%)	1
2	16	8 (50%)	5
3	14	6 (42%)	3
4	24	9 (37%)	3
5	18	7 (38%)	2
6	7	4 (57%)	2
7	3	1 (33%)	—
8	1	1 —	—
	100	43	16

TABLE I.—Age incidence of post-pertussis radiological shadowing, atelectasis and collapse of the lungs.

in the treatment of whooping-cough, unless treatment is begun very early in the disease. In many cases the diagnosis is difficult until the whoop has developed or the spasmodic nature of the cough is obvious. The course of the disease cannot then be altered. Antibiotics were therefore not routinely employed. In young children, and particularly in infancy, however, when the disease was diagnosed at the onset, as is usually possible in family contacts, a broad-spectrum antibiotic was used (chlortetracycline or tetracycline). Chloramphenicol was avoided because of the danger of blood dyscrasia. Penicillin was used for the treatment and prevention of secondary infection.

Ephedrine and isoprenaline were found of value in the presence of bronchospasm. When allergy was definitely recognized antihistamines proved useful.

DISCUSSION

The association between pulmonary collapse and a subsequent bronchiectasis is well established. Atelectasis caused by whooping-cough has been shown to be largely mechanical in nature. Lander and Davidson (1938) showed experimentally that aspiration of viscid sputum into the peripheral parts of the bronchial tree may be followed by atelectasis, and a mechanical compensatory dilatation of the bronchi in the collapsed areas. Lander (1946)

concluded that when bronchiolar occlusion produces atelectasis with associated bronchial dilatation the following events may take place:—

(1) The collapsed portion of the lung may re-expand with disappearance of the compensatory dilation of the bronchi (reversible bronchiectasis).
(2) Collapse and the consequent bronchial dilatation may be permanent.
(3) The collapsed portion of the lung may re-expand but the bronchi remain dilated because of damage to their walls by infective processes.

As collapse, and particularly smaller areas of atelectasis, cannot always be detected clinically, radiological examination after whooping-cough would

Lobe	No. of times involved	Marked involvement
Left lower	22	8
Right lower	23	8
Right middle	8	5
Right upper	4	—
Left upper	4	1
Lingular	2	1

TABLE II.—Lobar incidence of radiological shadowing in 100 cases of whooping-cough.

Lobe or lobes	No. of times involved
Left lower alone	9
Right lower alone	9
Right and left lower	9
Right middle alone	3
Right upper alone	3
Right middle and right lower	3
Right middle, right and left lower	3
Right middle and left lower	1
Right middle, left lower, left upper, and lingular	1
Right upper, left upper and lingular	1
Left upper alone	1
	43

TABLE III.—Anatomical distribution of shadowing in 43 cases of whooping-cough.

appear to be mandatory. Persistent respiratory symptoms, however, should not be ignored on the finding of a single negative radiological examination.

In the present series, those cases which took longest to clear, both clinically and radiologically, had a marked tendency to bronchospasm and an allergic background. Such complications might well be anticipated, in view of the fact that atelectasis not rarely occurs in asthmatic subjects, and is a well-known precursor of bronchiectasis. The combination of whooping-cough and bronchospasm would therefore seem to require special attention, even in those patients in whom asthma has not previously become manifest. If the family history raises this possibility, careful observation should be maintained with this point in mind. Bronchodilators and antihistamines have afforded considerable relief in these cases. Two known asthmatics who were receiving this treatment before the onset of whooping-cough cleared rapidly, in spite of temporary atelectasis.

Despite the seriousness of whooping-cough in infancy and the high incidence of shadowing between the ages of one and two years in this series,

all these patients did well. This may be because early diagnosis and treatment were possible in the family contacts. It would appear from the present series that postural coughing and chest percussion are of considerable value in the treatment of pulmonary complications. It may be of value in the prevention of bronchiectasis.

SUMMARY

The pulmonary complications of a consecutive series of one hundred cases of whooping-cough treated in general practice are described.

I wish to express my sincere thanks to Dr. H. G. Farquhar, of the Royal Liverpool and Birkenhead Children's Hospitals, for his invaluable help and advice.

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THE INFECTIVE FACTOR IN ASTHMA

By H. GORDON OLIVER, *M.C.*, M.D.
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'If you have anything new to say about asthma for Heaven's sake say it'.—Interview with Sir Walter Langdon Brown, when discussing a proposed thesis, Cambridge, 1934.

ALTHOUGH there is no complete unanimity regarding definition, it is generally agreed that asthma is a symptom-complex of multiple origin. Heredity, diet, endocrine influences, psychological factors, altitude, climate, and environment all play their part. Cases have been termed infective when asthma supervenes after an acute chest infection. When confronted with this problem the practitioner may well feel despondent. How can he help his patient? According to accepted teaching any advice offered must needs be negative or palliative, never positive or radical. All agree concerning treatment of the attack but the prevention of future attacks is a highly controversial matter. The patient is plainly told that there is no absolute cure, that he must learn how to live with his disability—that, in short, he must make the best of a bad business. It is cold comfort to be informed that sufferers rarely die during an attack. An atmosphere of defeatism wins no battles.

IODIDES AND MONILIASIS

During a prolonged investigation of moniliasis at the Jersey Chest Clinic (1930-39) I made the chance observation that asthmatics responded dramatically to intensive iodization (Annual Reports, 1930-39; Oliver, 1952). At the same time, Marett (1933) demonstrated that an acid-fast and CO_2-producing monilia was invariably cultured from asthmatic sputum. Under treatment the organism was grown with increasing difficulty and finally,

when the asthma subsided, it could no longer be obtained on culture. The working hypothesis we put forward for the part played by the organism was that the breakdown products of monilia give rise to histamine; the evolution of CO_2 has a transient effect on the respiratory centre causing the inspiratory spasm and prolonged forced expiration of asthma. Iodide, in massive doses, acts as a fungicide as in actinomycosis.

As the infection is overcome, attacks occur at longer intervals and with lessened intensity, with a great gain in weight and in general health. Iodide has been used in small doses as a routine treatment in asthma, but it must be emphasized that the drug must be employed in massive dosage over long periods. The earlier treatment is instituted the quicker the relief and the shorter the course required to banish the infection and give permanent relief. The patient is told that an immunity to an infection is being established; cooperation is quickly secured as asthma disappears and weight is increased. The respiratory centre becomes less sensitive; hearty laughter, for instance, no longer precipitates an attack. Prophylaxis is directed against unsterilized cow's milk. It is as unreasonable to expect success in cases of asthma of long standing, as it is to look for 'cure' in cases of chronic pulmonary tuberculosis, even with the latest antibiotic therapy, but even in life-long asthma considerable relief can be gained by the methods outlined.

A vaccine, preferably autogenous, appears to exert a favourable influence. The specific sensitivities (e.g. rabbit, cat, horse, hay, feathers) depart along with the asthma: they are regarded as instances of a bacterial allergy.

Infants with eczema have also been subjected to iodization; the eczema subsides and no subsequent asthma develops. Under any other method 50 per cent. of such cases develop asthma by the time they are two years old (Bray, 1931).

DETAILS OF TREATMENT

The iodide is given as follows:—

Potassium iodide	30 grains (2 g.)
Sodium bicarbonate	16 grains (1 g.)
Tincture of nux vomica	6 minims (0.4 ml.)
Spirit of chloroform	4 minims (0.25 ml.)
Arsenical solution	4 minims (0.25 ml.)
Compound infusion of gentian	to ½ fluid ounce (14 ml.)

½ fluid ounce (14 ml.) to be taken twice daily in water after meals.

Children have no difficulty in taking this mixture, and a child of seven years will take 120 minims (8 ml.) twice daily; the older the patient the greater the difficulty. Rarely, acute iodism follows a single dose and treatment has to be abandoned. All other degrees of iodism are disregarded; the cure is so much more important than the temporary discomfort of iodism. An equally efficient fungicide, without side-effects, would be a welcome discovery.

The vaccine is graduated, starting with an initial dose of 2.4 million and working up to 24 million by the tenth injection. The injections are given at weekly intervals.

ILLUSTRATIVE CASES

The H. family.—The grandfather, now aged 74, developed asthma in childhood, following an attack of measles. Treatment with iodides was not started until late in life, but has produced considerable amelioration. Of the three children, two developed asthma. A son developed severe asthma following a cold in infancy. This was successfully treated with iodides at the age of 10 years, and he has had no further recurrence. He is now 45. A daughter, now aged 42, developed asthma at the age of 32. She was treated with iodides *ab initio* and cured in a few months. None of the four grandchildren has asthma.

The Le M. family.—The grandfather was a life-long asthmatic and died of heart failure at the age of 62. One of his daughters developed asthma at the age of 38, and was quickly brought under control by iodides. Her son had recurrent left basal pneumonia—probably associated with bronchiectasis. He developed asthma at the age of 9 years, and this responded well to iodides. He is now 12 years old and attending school regularly, although he is unable to take violent exercise, on account of the dyspnœa which it causes. He is taking full doses of the iodide prescription twice daily.

The G. family.—The father, whose sputum is monilia-positive, has chronic bronchitis but no asthma. One son developed acute bronchitis and asthma at the age of 10 years. He was given two months' intensive treatment with iodides, and has had no further bronchitis or asthma. He is now 20 years old. A daughter, now aged 15 years, developed severe eczema and prurigo at the age of 2 years. She had intensive iodide therapy for nine months, and the eczema cleared. There has been no recurrence.

A.D.F.—This boy developed asthma following a lung infection at the age of 2 years. He had the usual variegated treatment by many experts in London, including 14 days as an inpatient at The Hospital for Sick Children, Great Ormond Street—all without benefit. When I first saw him, at the age of 5, he was a grossly overclad (three vests), very thin, nervous child of good intelligence, with a history of severe nocturnal asthma and nocturnal enuresis. He was prescribed 8 ml. of the iodide mixture twice daily, and started on a course of weekly injections of the stock vaccine. Within seven weeks the asthma had cleared entirely and he had gained 10 lb. (4.5 kg.) in weight. Six years later he is a self-reliant, healthy schoolboy who plays all games, and has had no further recurrence of his asthma.

SUMMARY

A specific infection with monilia is present in all asthmatic sputa. Eradication of this infection banishes asthma, with great gain in weight and general health. Treatment with full doses of iodides and a course of vaccine is continued until the weight becomes stabilized. Infantile eczema can be similarly treated. Prophylaxis includes the banning of raw cow's milk. It is essential that both doctor and patient clearly grasp that an infection is being combated.

Prognosis is excellent provided treatment is instituted before the infection has a firm hold on the patient. The doctor can speak with authority, can offer a cure and can instance successful cases as evidence.

The infective factor, hitherto disregarded, is of supreme importance.

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SECTION OF GENERAL PRACTICE OF THE

ROYAL SOCIETY OF MEDICINE

DISCUSSION ON THE COMMON COLD

January 15, 1958

Dr. R. E. Hope Simpson (*Cirencester*).—The investigation to be described was suggested by the close association of the respiratory diseases presenting in general practice with the seasonal temperature. The figures, though rough, were suggestive of a close association but one which did not hold for cases of sore throat. In 1954 and 1955 we enrolled some 350 volunteers in about 80 families to keep a daily record of certain respiratory symptoms. Our objectives were: (a) to discover the full incidence of colds; (b) to see how closely colds parallel the changes in seasonal temperature.

The records showed that during each of these years the average number of colds per person was seven, averaging ten days each: i.e. seventy days per annum. If these figures are representative for other years each of us suffers on the average from colds for 790 weeks out of the 3,500 of our lives. This compares with two weeks for measles which we usually consider common.

SEASONAL INCIDENCE

In studying the relationship with seasonal temperature we found that the secular curve of morbidity from colds among the volunteers gave a remarkable concordance with the inversion of the seasonal temperature as measured at a depth of 1 foot (30 cm.) in the earth. It seems that the temperature has only to drop 1°F. for the morbidity from colds to rise by about 1 per cent. The correlation was close throughout 1954 and 1955. The drop in seasonal temperature itself may be the direct cause of the increased morbidity but there are difficulties in accepting this solution of the problem. The work of Leonard Hill and others shows that the direct application of cold to the human body does not have the effect of producing colds. It seemed to us more likely that the colds were produced by some secondary agency, the effect of which varies in intensity with the seasonal temperature change. This is especially likely because most of us spend much of our time—in winter most of our time—in temperatures far removed from those of the outside air.

IMPORTANCE OF HUMIDITY

After much search our suspicions were aroused by the deficiency of humidity of the indoor atmosphere: i.e. the evaporating power or dryness of the air. The usual range of humidity of outdoor air we found to be from 70 to 98 per cent. with an average of about 80 per cent. For a brief period in summer the indoor air reaches this state of humidity. For most of the year, however, the air indoors is much drier than the outdoor air and the difference in humidity between the atmosphere indoors and outdoors over the year gives a curve that approximates very closely to that of the morbidity from colds.

Increased colds and increase of dryness due to artificial heating in fact run closely parallel. It is therefore possible that this dryness is at least one of the agencies responsible for colds. In support of this theory one remembers how Lassen, when treating bulbar palsy produced by poliomyelitis in Denmark with positive pressure respiration, found that, unless the gases were fully saturated, the patients developed respiratory infections and were prone to die. The lungs require that the inspired gases shall be fully saturated with water vapour. This is clear evidence of the importance of an adequate content of water vapour, and deficiencies are remedied in the human nose and upper respiratory passages by a humidifying apparatus. It may reasonably be supposed that this mechanism will readily meet naturally occurring variations of outdoor humidity, but the dryness due to the artificial conditions especially in winter may impose a far greater strain on this mechanism. Increase of temperature also enhances the drying effect. The ciliated epithelium lining the bronchial tree wafts a continuous stream of mucus spirally towards the mouth and so washes away airborne bacteria, viruses and particles of dust from the direction of the lungs. Dry air acts by thickening the mucus and impending the cilia, so allowing bacteria and viruses to gain access to unaccustomed regions. The opening of windows fails to produce adequate humidity in the presence of artificial heating. Even a humidifier fails to compete successfully with an electric fire.

In a cheese factory in this area the workers in a room kept cool and at a high humidity suffered less than one-half the morbidity from respiratory diseases experienced by the other workers of the factory.

SUMMARY

The common cold attacks with a frequency far outstripping any other disease. The incidence is so closely correlated with the seasonal temperature that a drop of 1°F. coincides with an increase of 1 per cent. in the morbidity. The effect of artificial heating in our houses is to dry the air to an extent which provides a most suggestive association with the morbidity from colds.

Dr. J. Morrison Ritchie (*Public Health Laboratory, Birkenhead*).—In view of the experience that over a period of about twenty years a series of autogenous vaccines given, without encouragement, to insistent sufferers from chronic colds had appeared to give some protection, the possibility was considered that the function of the virus might be initially to depress the resistance of the patient, so giving the nasopharyngeal flora a free hand to upset the balance normally maintained—what one might call the 'starting handle' theory. If this stage could be controlled, we argued, the duration of the common cold would be cut to twenty-four or forty-eight hours of a clear nasal discharge, so eliminating the later and mucopurulent stages altogether with the loss of efficiency attached thereto.

During the winter of 1955-56, a series was tried in which 109 volunteers, receiving weekly doses of autogenous vaccine prepared from their saliva, were compared with 75 controls who received carbol saline only. The

percentage of colds in the controls was six times that shown by the vaccinees. This gave strong support to the theory, but mass autogenous vaccinations are impracticable. It was decided therefore to try minimal doses of the appropriate antibiotic locally on a short-term basis at the time of invasion, the idea being to depress the activity of the nasopharyngeal flora to correspond to the assumed depression of resistance due to the virus. A series of 1000 volunteers in various industrial establishments was taken during the winter of 1956-57, controls being given an inert tablet. Tablets were given only when a patient reported the initial stages of a cold, and were not used as a prophylactic as such. The results were similar to those in the autogenous vaccine experiment, in that the percentage of full colds was seven times as high in controls as in those receiving antibiotic tablets, although the percentage of prodromal symptoms was much the same in both groups.

PRACTICAL APPLICATION OF THE FINDINGS

IN INDUSTRY, WHERE A MEDICAL CENTRE IS AVAILABLE

(a) *Autogenous vaccines* are impracticable as a routine, but would give good results in the victims of chronic colds if facilities allow.

(b) *Short-term local antibiotics.*—The procedure is extremely simple: following a preliminary sensitivity test by a laboratory, the appropriate antibiotic tablet is substituted for whatever palliative has been previously used.

IN GENERAL PRACTICE

(a) *Autogenous vaccines.*—These are easy to make, but must be autogenous as the nasopharyngeal flora of the general population is very heterogenous. The dosage we used was a series of 0.1, 0.3, 0.5, 0.5 ml. of a 500 million suspension at weekly intervals throughout the winter. To many this procedure is infinitely preferable to a winter of colds. In several members of the earlier series a permanent immunity to colds seemed to be set up after a couple of winters' treatment.

(b) *Short-term local antibiotics.*—This is not as easy to apply as in industry as patients are less likely to report on the first day of the illness, which is an obvious disadvantage. Where found possible, however, this method should produce as good results as those in industry, and with no injections. Incidentally, it has been found by some that antibiotics given early in cases of influenza tend to prevent sequelæ and so allow patients to return to normal more rapidly. This suggests that the 'starting handle' theory may have some application in influenza. Antibiotic tablets should not be available except on prescription.

DISADVANTAGES

Autogenous vaccines.—No snags have been encountered in twenty-five years. A slight area of local redness develops occasionally, but gives no trouble.

Antibiotic tablets.—Here the only real snag is the occurrence of a strawberry tongue. This appears to be largely an idiosyncrasy, and has seldom achieved more than nuisance value.

DOCTORS' BILLS

By LAURENCE DOPSON

'When the artless doctor sees
No one hope, but of his fees,
And his skill runs on the lees;
Sweet Spirit, comfort me!'
Robert Herrick.

THE current controversy over doctors' remuneration is but another illustration of the old adage that there is nothing new under the sun. Doctors' bills have been a subject of recurring interest throughout the centuries, and a glance at some of those preserved in archive repositories suggests that methods of computing these have not changed in essence.

ROYAL ACCOUCHEURS AND THEIR FEES

Sir William Priestley was a distinguished 19th century obstetrician, whose correspondence is now at the Royal College of Physicians of London. During the Princess Christian's confinement, in May 1877, he received two telegrams in the same afternoon: the first from the doctor in attendance asking him to catch the four or five o'clock train from Paddington to come down to see the Princess ('bring long forceps'), and the other asking if he had had the first telegram. 'If train inconvenient order a special' this second telegram added.

'I am anxious to know if the following scale of fees will be satisfactory to you', wrote Sir William Jenner, Queen Victoria's physician, in making arrangements for Priestley to attend the confinement of Princess Louise of Hesse.

'Fee for the Accht 150 guineas.
If detained at Darmstadt more than two days five guineas a day for as long as you remain. I say *if* detained. I perhaps should have said for all days after the first two as you will be sure to be detained more than two days'.

A second letter shows that the final form differed only in the interval allowed between the confinement itself and the day on which the 5 guineas a day became payable:—

'Fee 150 gns.
Attendance after the 6th day at Darmstadt from 26/10 to 8/11 13 days at 5 gns. 65 gns.
Travelling &c. expenses 25 gns.'.

THE MARQUIS OF WATERFORD

For the period July 3, 1825, to June 28, 1826, the account which Sir Charles Scudamore, 'M.D. etc.', rendered to the executors of the late most noble the Marquis of Waterford amounted to £3,462 2*s*. Found among papers at Scarborough Museum, and now in the library of the Royal College of Physicians of London, this bill begins: 'Visit to the Marquis—to Hastings and remaining in attendance for two days £100'. 'Accompanying the

Marquis from Buxton to Matlock and remaining a day and a half in attendance on his Lordship, £50' is the entry for September 1, 1826. In October the doctor went to Ireland to attend the Marquis, accompanying him from Dublin to Curraghmore and remaining several days there. 'But as I consider my visit partly friendly and partly professional I shall only put down the sum of £200'. This item, however, is endorsed: 'Disallowed'.

It appears that this fashionable physician, who had accompanied the Duke of Northumberland, Lord Lieutenant of Ireland, as his private doctor and who attended the Earl of Tyrone on his death bed, charged 2 guineas a visit, although 'visits to Mrs. Copins at Clapham by desire of the Marchions.' were 5 guineas.

TWO PROVINCIAL PRACTITIONERS

In contrast are the charges of a provincial practitioner whose ledger for 1835-40 is preserved at the same library. Dr. R. S. Harvey was three times Mayor of Lincoln, where he practised, and died a relatively wealthy man in 1875. From the index in his ledger he appears to have had a 'list' of about 800 patients. For 'a journey to Meer Hall' on October 15, 1839, he charged 3*s.*; the mixture prescribed cost 3*s.* 6*d.* and the powders 1*s.* The regular charge for a confinement was 10*s.* 6*d.*, and, since these were the days before dentists, it was to the doctor that Mr. Pepperdine went for a tooth extraction on November 30, 1840. It cost him 1*s.* The ledger has been made up in a number of hands, possibly apprentices rather than the secretary-receptionist of today, and it is interesting that one account is endorsed by the doctor: 'Don't write'.

An earlier provincial doctor's bill is that of Richard Langworthy, now deposited at Plymouth City Library, which lists medicines supplied from 1743-48, such as 'Child's Purge 4*d.*', 'Youngest's Purge 3*d.*', 'Wife's Cordiall 2*s.* 2*d.*' and 'Wife's mixture for the Toothach 6*d.*'.

DISPUTED BILLS

Sometimes doctors had trouble over their accounts. That of Edward Hale and John Cotman, two surgeons living at Hambledon, detailing medicines supplied to a pauper in 1785, which is at Portsmouth City Library, bears two endorsements.

One is by the surgeons of the Portsmouth workhouse:—

'We having examined the within bill and are of the opinion that forty shillings may be deducted therefrom, with propriety'.

The other says:—

'We whose names are hereunto subscribed are much astonished to see the signatures of the two gentlemen of the Faculty so very improperly placted to this Bill, intimating an Imposition in the Charge, as they are very certain they themselves wd. have made it double for so long an attendance even at their next door'.

The sum claimed was £6 8*s.* and the period of treatment from November 20 to March 15. The document was shown at a National Register of Archives exhibition at Portsmouth.

CURRENT THERAPEUTICS

CXXIII.—ORAL THEOPHYLLINE COMPOUNDS

By MARGARET TURNER-WARWICK, D.M., M.R.C.P.
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THEOPHYLLINE has a wide range of uses in therapeutics when it is given intravenously, but maintenance oral treatment is not usually possible owing to severe gastro-intestinal side-effects. Many attempts have been made to overcome this difficulty, resulting in the introduction of several new compounds and salts of theophylline. Compared with oral theophylline or theophylline with ethylenediamine these may be used in much larger doses, and high theophylline plasma levels have been achieved with some of them. So far, however, there has been no good evidence to suggest that their use represents a major therapeutic advance. It is well recognized that the place of theophylline in the treatment of chronic bronchial asthma, cardiac failure and angina is of secondary importance only, and it should be pointed out that this situation has not been altered by the introduction of new theophylline compounds designed for oral use.

INDICATIONS FOR THE USE OF THEOPHYLLINE

Before dealing with the new oral preparations, it will be useful to summarize the pharmacology of theophylline and the indications for its use. For a fuller review of the subject the reader is referred to Goodman and Gilman's 'The Pharmacological Basis of Therapeutics' (1955).

Bronchial Asthma.—Theophylline relaxes bronchi both after histamine-induced spasm and in clinical asthma. In status asthmaticus with adrenaline resistance, intravenous theophylline is commonly effective (Hermann and Aynesworth, 1937). Its site of action is probably directly upon bronchial muscle (Young and Gilbert, 1941).

Cardiac failure.—Theophylline increases cardiac output and the venous filling pressure is reduced (Howarth *et al.*, 1948). Studies on isolated heart preparations demonstrate an increase in the rate and amplitude of contraction (Boyer, 1943).

Diuretic effect.—In patients with heart failure theophylline causes a diuresis, partly by its effect upon cardiac output but also by depressing tubular absorption (Walker *et al.*, 1937).

Angina pectoris.—Although direct demonstration of increased coronary blood flow can be shown on isolated preparations, the value of theophylline in relieving angina pectoris has not been demonstrated conclusively; in some reports it has been regarded as useless for this purpose (Evans and Hoyle, 1933).

Myocardial infarction.—The value of theophylline in the immediate treatment of myocardial infarction has not been verified clinically, although there is some experimental work suggesting that the area of infarction is reduced (Mokotoff and Katz, 1945).

Cerebral circulation.—Theophylline has a direct effect upon the cerebral arterioles (Wechsler *et al.*, 1950); vascular resistance is increased and the

Compound	B.P. or trade name	Average dosage	Tablet size (mg.)	Theophylline content (%)
Theophylline ethylenediamine	Aminophylline B.P.	200 mg. thrice daily	100	79
Choline theophyllinate	Choledyl (Allen & Hanburys)	200 mg. four times daily	100 and 200	60
Theophylline ethanoate of piperazine	Etophylate (Rona)	500 mg. four times daily	250	56
Theophylline monoethanolamine	Monotheamin (Lilly)	100 to 200 mg. thrice daily	100 and 200	75
Theophylline ethylenediamine with aluminium hydroxide	Theodrox (Riker)	200 to 400 mg. thrice daily	Aminophylline, 200; aluminium hydroxide, 250	79
Theophylline Na glycinate	Aminomed (Medo Chemicals)	640 mg. four times daily	100 and 300	50 approx.
Dihydroxypropyl theophylline	Neutraphylline (Continental Lab.)	400 mg. four times daily	200	72

TABLE I.—Oral theophylline compounds.

cerebrospinal fluid pressure falls. On account of these actions headache from many causes may be relieved.

Cheyne-Stokes respiration.—This can be relieved dramatically by theophylline compounds (Marais and McMichael, 1937), but the mode of action is uncertain.

DISADVANTAGES OF ORAL THEOPHYLLINE AND AMINOPHYLLINE

Theophylline is very insoluble and often causes severe nausea and abdominal pain when given by mouth. Theophylline with ethylenediamine (aminophylline) is more soluble but is highly alkaline in solution; it is hydrolysed on contact with gastric juice and free theophylline is liberated

causing gastric irritation. As a result, patients may not tolerate the dose required to maintain a therapeutic blood level of theophylline.

THE ORAL COMPOUNDS OF THEOPHYLLINE

The oral derivatives of theophylline are readily soluble in water, neutral in reaction and stable over a wide range of pH. Although some of these have been available for the past decade they have not been assessed extensively in clinical medicine. There is evidence, however, to suggest that some of them may have definite therapeutic value and they deserve a wider study. Table I shows seven theophylline compounds which have been recommended for oral administration.

CHOLINE THEOPHYLLINATE ('CHOLEDYL')

This compound was introduced in 1954. Its pharmacological properties are similar to those of theophylline and it has been studied more fully than the other theophylline derivatives.

In bronchial asthma there have been several favourable preliminary reports. Brown and Clancy (1955) obtained improvement in 22 out of 35 patients and, correlating their results with different types of asthma, they suggested that it was especially useful in emphysematous subjects with bronchospasm but without demonstrable allergy. The work of others, and personal experience with this compound, suggest that there is no particular group of asthmatics in which its use is especially indicated. In an attempt to measure relief of dyspnœa more objectively in patients under treatment with various preparations, Simon (1956) used a 'respiratory index'. (Respiratory index $= \frac{\text{vital capacity}}{100} +$ breath-holding time.) He showed that greater relief was obtained with oral theophylline compounds than with placebo tablets and that 'choledyl' was more effective than aminophylline. The differences demonstrated between the compounds studied, however, were not very great. The value of continuous treatment with 'choledyl' has not yet received adequate attention, but Prime *et al.* (1957), in a well-planned trial to assess the usefulness of different compounds in the same subjects, suggested that this preparation was more promising than either maintenance isoprenaline or 'theodrox'.

Although Batterman and his colleagues (1955) reported favourably on the usefulness of 'choledyl' in the treatment of heart failure, it is difficult to interpret the results of a trial in which more than one method of treatment was used simultaneously. On the available evidence the only conclusion that can be drawn is that the place of 'choledyl' in the treatment of this condition has not yet been established. In the treatment of angina, the work of Aravanis and Luisadai (1956) is of interest. Subjective improvement was found in 85 per cent. of patients receiving 'choledyl', compared with 45 per cent. of those on placebo tablets. This result was confirmed by the improved response to an exercise test in the patients receiving the active

preparation. It remains to be seen whether these findings will be confirmed.

In view of these encouraging reports, the occurrence of side-effects is clearly important. Brown and Clancy (1955) noted gastric symptoms in five of 35 patients (14 per cent.), but Gagliani (1954), comparing aminophylline and 'choledyl' (0.5 g., eight-hourly), reported nausea or pain in 24 per cent. of subjects on the former drug but in only 5 per cent. of those on 'choledyl'. Experience suggests that some gastro-intestinal disturbance will probably occur in 5 to 10 per cent. of patients on maintenance treatment with 'choledyl' and that the incidence increases when the dose is raised over 0.2 g. six-hourly. Individual tolerance varies greatly. If high doses can be achieved, a good therapeutic response is more probable.

THEOPHYLLINE ETHANOATE OF PIPERAZINE ('ETOPHYLATE')

This compound was introduced by Baisse in 1949 and has identical pharmacological properties to theophylline (Lian and Charlier, 1951). In a small preliminary trial, Langeron *et al.* (1950) suggested that the frequency and intensity of anginal attacks were reduced by 'etophylate' and that it sometimes stimulated a copious diuresis in patients with cardiac failure who had not responded to digitalis. No detailed studies on patients with heart disease, however, have yet been reported. Trials in the treatment of asthma have not been reported, but in my experience this compound has occasionally improved severe and persistent asthmatics.

Gastro-intestinal upsets appear infrequently: only one of 19 patients reported by Lian suffered nausea.

THEOPHYLLINE MONOTHANOLAMINE ('MONOTHEAMIN')

This compound has been studied by Lamson and Bacon (1941). Their investigation, however, was not controlled nor was comparison made with other theophylline compounds, and their report that improvement was obtained in 90 per cent. of asthmatics must be interpreted with reserve. In this trial the majority of patients required less than 0.2 g. eight-hourly for subjective relief and, in contrast to ephedrine and related compounds, they appeared to remain responsive to the drug even after prolonged treatment. About 15 per cent. of the patients suffered minor and often transient gastro-intestinal side-effects. There have been no further trials upon which to assess the value of this drug, but good results have been achieved in individual asthmatics.

AMINOPHYLLINE WITH ALUMINIUM HYDROXIDE ('THEODROX')

Cronheim (1953) reported that, as judged by blood theophylline determinations, absorption of aminophylline was not impaired by the addition of aluminium hydroxide but that the side-effects of aminophylline were

greatly reduced. Other reports (Gagliani, 1954) suggest that the tolerance to 'theodrox' is not appreciably different from that to aminophylline. Prime *et al.* (1957) studied asthmatic patients on maintenance doses of 'theodrox', but improvement was less marked than with aminophylline or 'choledyl'.

THEOPHYLLINE SODIUM GLYCINATE ('AMINOMED')

Krantz *et al.* (1947) attempted to overcome the gastric irritation of theophylline by the addition of sodium glycinate. Extensive trials have not been undertaken but, in view of the appreciable sodium content (12 mg. Na per 100 mg. theophylline), it is obviously contraindicated in many patients with heart disease.

DIHYDROXYPROPYL THEOPHYLLINE ('NEUTRAPHYLLINE')

This compound was introduced by Maney *et al.* (1946). They suggested that it was absorbed unchanged from the intestine, but that its pharmacological properties were similar to those of theophylline. Adequate clinical trials have not been reported.

COMPARATIVE TRIALS OF THEOPHYLLINE COMPOUNDS

Although pharmacological activity can be demonstrated in all of these preparations, evaluation of their relative clinical usefulness must depend upon comparative trials. In bronchial asthma, it has been shown that the relief of symptoms depends upon an adequate plasma theophylline concentration of about 1 mg./100 ml. (Turner-Warwick, 1957); a study of plasma levels achieved with different compounds therefore has clinical importance. Turner-Warwick (1957) showed that after a single test dose of equivalent theophylline content, appreciably higher plasma levels were obtained with 'choledyl' and aminophylline than with 'etophylate', 'neutraphylline' or 'aminomed'. Working independently, Phear (1957) confirmed part of these findings. He measured changes in the forced expiratory flow rate after single intravenous injections of 'etophylate', 'neutraphylline' and aminophylline; no improvement was recorded after 'etophylate' or 'neutraphylline', but in the same subjects improvement was demonstrated after aminophylline. A comparative trial of maintenance treatment with different theophylline compounds is required before the value of these substances can be assessed finally.

SUMMARY

In bronchial asthma and in chronic bronchitis with bronchospasm, treatment with theophylline will usually be secondary to that with sympathomimetic drugs, steroids and attention to specific factors. Oral theophylline compounds are useful additional treatment. So far, 'choledyl' has been the most promising, but occasionally 'etophylate' and 'monotheamin' have been more effective. The variation of response from patient to patient

makes it well worth while trying several different preparations before abandoning this form of therapy, and the dose should be gradually increased until symptomatic relief is obtained or until the limit of tolerance is reached.

In the treatment of heart failure, the place of maintenance theophylline is secondary to digitalis, to the more powerful diuretics and to salt restriction, but reports suggest that 'choledyl' may be useful additional therapy in patients who have failed to respond to other measures.

It is extremely difficult to assess the value of drug therapy in angina pectoris, but in a condition in which no really effective treatment is available, the favourable reports of 'choledyl' and 'etophylate' in this condition warrant their further trial.

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MINOR SURGICAL PROCEDURES

III.—MINOR BURNS

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Burns probably constitute the largest single group of injuries upon which the advice of the general practitioner is sought. It has been estimated that every year in this country they are responsible for almost 1000 deaths, that 22,000 are treated in hospital and that some 60,000 are treated as outpatients at hospital (Colebrook, 1950; Tough, 1954). We have no means of knowing how many are dealt with at home or in the surgery but the figure must run into many thousands. If death does not ensue the penalty may be paid in disfigurement, contractures or other loss of function. Loss of earning power, even with minor burns, may easily last for weeks and cause considerable hardship. The problem is therefore by no means a trivial one and, if the best is to be done for these people, an accurate assessment of each case is of prime importance.

INCIDENCE AND PREVENTION

Statistics based on cases admitted to burns centres show that two-thirds are due to home accidents and one-third to industrial hazards. The great majority of domestic accidents occur in young children and the aged: i.e. in those less able to look after themselves. Since over 80 per cent. of these are preventable, it behoves everyone with the opportunity to do so to warn all in charge of children or the old and infirm of the common dangers from unguarded fires, cooking utensils and highly inflammable clothing. Epileptics should have impressed on them the serious risks when sitting or working near open fires. Their burns, sustained while unconscious, are always deep, often involve the skull, and may result in loss of an eye or in disfigurement which beggars description.

APPRAISAL

Recognition of the seriousness of any individual burn and whether it is suitable for treatment at the surgery, at home or in hospital demands some understanding of the pathology, potential dangers and complications. The following are the factors to be considered.

(1) *Extent.*—If in an adult over 20 per cent., or in a child over 10 per cent., of the body surface is burned, even though superficially, dangerous shock will ensue if early and adequately controlled resuscitation therapy is not instituted forthwith. Such cases should therefore be admitted to hospital at once.

Pulaski's 'Rules of Nine' provide a simple and sufficiently accurate method of assessment. In this the head and each arm are each taken as 9 per cent. and the front of the trunk, the back and each lower limb as 18 per cent. of the total body area. In infants the head constitutes over 9 per cent. and the lower limbs correspondingly less. Allowance should be made for this difference.

(2) *Depth.*—Estimation of depth can be a very difficult problem and in some cases may not be possible for twelve to fourteen days. Simple erythema, which will subside within a few days leaving no scar and no interference with function, will be obvious for what it is. Full-thickness destruction of skin may present at once as a greyish white, insensitive area usually, although not always, without blisters. In these the epithelium of the skin appendages is destroyed and spontaneous healing can only take place by ingrowth of epithelium from the margins of the wound. This may be a slow and tedious process, which should be expedited by grafting. Most burns are intermediate in depth and involve necrosis of the epidermis and a varying thickness of the dermis with its sebaceous and sweat glands and hair follicles. It is in these, the majority, that the difficulty of diagnosis arises. Blister burns may be quite superficial and heal with virtually no scarring. If the surface left after removal of blisters blanches on pressure, it is tempting to assume the burn is quite superficial and the dermis not deeply involved. Further necrosis may take place, however, as a result of thrombosis in the dermal vessels and such burns may prove to involve the full thickness of skin. Infection may also convert a superficial into a deep burn. It is therefore unwise to attempt an accurate prognosis in these cases when first seen.

(3) *Site.*—In some parts of the body burns may be followed by such crippling deformities and complications that they must be regarded as serious even though not extensive. Burns of the eyelids or adjacent cheek may cause ectropion, with its attendant risk of corneal exposure and ulceration. Even a comparatively localized but deep burn of the palmar aspect of the fingers may result in contracture. In burns of the dorsum of the hand or fingers, especially of the thinner skin over joints, the extensor tendons may be exposed or the joint opened when the slough separates.

(4) *Cause.*—Deep burns are the rule in epileptics and most of these require specialized treatment in hospital. The all too frequent burn sustained when a child grasps the hot element of an electric fire, even if at first sight apparently trivial, is always deep and requires early excision and grafting. Electrical accidents from faulty use of electrical apparatus tend to produce localized deep burns, usually of the hands. True electric burns caused by the passage of an electric current through the patient commonly result in extensive sloughing. Among chemical causes, phosphorus and hydrofluoric acid provide injuries of particular urgency, because of their progressive nature until adequately treated. In all these circumstances, even small burns are probably best dealt with in hospital as soon as possible.

(5) *Age and general condition.*—The old and infirm, often because of coincidental cardiovascular, renal and respiratory disease, withstand thermal

injury badly and even burns involving less than 10 per cent. of the body may result in death. If the burn is extensive, or from its site such as to require treatment in bed, the patient is probably better in hospital where expert general nursing care is available. When the burn is not a severe one transfer to hospital is of doubtful value. Provided his general needs can be met at home, there would appear to be much to be gained by keeping him there and allowing him to pursue his normal activities as far as possible, but the relatives should always be warned of the risks in these old people.

With the above considerations in mind it becomes obvious there can be no simple definition of a minor burn. In general, however, it can be said that a minor burn suitable for treatment at home is one which is not, from its extent, likely to give rise to shock or, from its depth or site, to lead to crippling complications and one which will heal without undue delay. The latter requirement is difficult to estimate since even very limited deep burns sometimes take several weeks to heal. Ideally, every full-thickness loss of skin involving over 1 per cent. of the body, even if not on the face or hands and provided the patient's general condition permits, should have the advantage of skin grafting.

TREATMENT OF THE 'MINOR' BURN

The aim, as in any wound, is to achieve epithelialization as soon as possible. In superficial burns valuable islets of viable epithelium survive in remnants of the skin appendages. It follows that nothing should be done which might destroy these and convert the burn into a deep one which can only heal by ingrowth of epithelium from the margins. Unnecessary trauma during initial cleansing should be avoided. Strong chemical antiseptics may be harmful and are now regarded as having no place in the treatment of these cases. Coagulating agents, such as silver nitrate and tannic acid, can cause further tissue necrosis and should be eschewed. Even the milder 'triple dye' probably has no advantages over a sterile dry dressing and should be discarded. Since sepsis can cause further tissue damage everything should be done to minimize the chance of infection. It is here we must face up to the fact that there is as yet no universal panacea in the form of a local application which will replace sound surgical principles. The multiplicity of antibiotic powders, creams and medicated dressings elaborated in the past two decades is witness enough of this. It cannot be reiterated too often that the course of a burn depends upon the general care of the wound, and that local medicaments should only be regarded as possible adjuvants.

INITIAL CARE

Using a detergent, such as 1 per cent. cetrimide ('cetavlon'), the wound and a wide margin of surrounding skin should be gently but thoroughly cleaned. This should include the skin for several inches at least in all directions. There is some evidence that chlorhexidine ('hibitane') is effective against organisms not covered by cetrimide and it may be an advantage to

use this after the latter. The treatment of blisters is controversial but, since the skin over them is necrotic and may encourage infection, it is probably safer to excise all loose epidermis. Following cleansing the wound is gently dried with sterile swabs. From now on the object is to maintain conditions inimical to the growth of organisms. Foremost among these is dryness, and this may be achieved by either the exposure technique or absorptive dressings. In cases otherwise suitable for treatment at home the exposure method is probably best restricted to small burns of the face, neck and perineum where satisfactory occlusive dressings are difficult to attain, and to lesions on the anterior aspect of the trunk or thighs where relative immobilization to prevent cracking of the dry crusts can be achieved. In the latter the burned surface is protected from contact with the bedclothes by using a bed cradle covered with a sheet and blankets. In these cases the crust which forms separates, leaving a healed surface in about two weeks provided the burn has, as diagnosed, been superficial. When dressings are used, a single layer of non-greasy open-mesh 'tulle gras' should be applied to the dried wound and over this thick gauze swabs and cotton-wool. Particular care should then be taken to see that the surface fixative dressing is adequate in extent and that it remains so, using 'elastoplast' for the purpose.

It is sometimes said that the use of local antibiotics carries a risk of allergic reactions or of inducing insensitivity to any organism present. The other view is that these risks are small and more than offset by the prophylactic value of such applications. When a decision is taken to use them as an adjuvant to absorptive dressings, it is important to avoid a greasy vehicle which encourages moisture and maceration of the wound, since this nearly always leads to infection. Perhaps the safest method is to use a powder consisting of 1000 units of penicillin to a gramme of lactose. The indiscriminate use of chlortetracycline or chloramphenicol creams is illogical and expensive. Such should only be used for burns already infected with organisms shown to be sensitive to them and not to the simple antibiotics.

FURTHER TREATMENT

Since every examination of the wound carries the risk of entry of infection, dressings should not be unnecessarily frequent. Where it is thought that the burn involves only the partial thickness of skin, and that spontaneous healing will therefore take place, there is nothing to be gained by dressing the wound before twelve to fourteen days, by which time it will be healed or virtually so. If, at this time, early hopes are not fulfilled and the presence of an adequate thick eschar or slough suggests full thickness destruction of skin, consideration can be given to the desirability of expediting healing by referral to hospital for excision of slough and grafting. Indications for earlier removal of the primary dressing are unexplained pain or temperature suggesting invasive infection, inadequacy of the surface dressing with partial exposure of the wound, and soakage of serum through the dressing with the attendant risk of infection gaining entry. The management of burns of the

eyelids or deep burns of the fingers, hands and genitalia is outwith the scope of this article since it is now generally agreed that such are better dealt with in the favourable conditions of hospital.

THE INFECTED BURN

Some degree of infection is an almost invariable accompaniment of separation of sloughs in deep burns but, provided *Streptococcus pyogenes* or heavy contamination with coagulase-positive staphylococci and gram-negative organisms is not present, it is not usually serious in small burns. Mixed infection with these organisms is the rule in neglected burns, and results in unhealthy pale, watery exuberant granulations, over which epithelium will not grow. Such wounds should be treated by excision of slough as it loosens and firm compresses of eusol or a saturated solution of sodium sulphate. These compresses may be left undisturbed for several days and merely moistened daily with the solution after removal of the outer dressings. When all sloughs have been removed and granulations reduced a change may be made to the local antibiotic indicated by the results of swabs sent to the laboratory for culture and sensitivity tests. Where facilities for this are not available the use of a broad-spectrum local antibiotic may be justified.

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REVISION CORNER

PLANTAR WARTS

THE term plantar verruca or wart refers to warts occurring on the plantar surface of the toes, feet and heels, where pressure occurs and the epidermis is thick.

ETIOLOGY

It is generally accepted that they are caused by a virus although this has not been cultured. It is debated whether the virus is the same as that causing the other types of wart. Although Lyell and Miles (1951) claimed that inclusion bodies can be seen in plantar, palmar and periungual warts and not in the other varieties, it is difficult to fit this observation with the common experience of most clinicians that all varieties can be found associated in the same patient. Also, when the pressure is removed, plantar warts project above the surface and look like the common wart. This occurs if for some reason the patient has an enforced period of rest in bed, and is also seen in large warts on the borders of the feet when the upper part of the wart projects and the lower part, in the pressure bearing area, is flat and shows the

features of a plantar wart. Outbreaks of plantar warts certainly occur but it seems possible that the same virus can at times develop variants which have affinities for different areas of skin.

Plantar warts occur at any age but in a series of 209 patients, Duthie and McCallum (1951) showed that 87 per cent. occurred between the ages of 5 and 24. The incubation period is given variously between one and eight months, but two to three months seems to be a common period.

Epidemics may occur in closed communities and have been related to use of communal showers, swimming baths or bare-footed group dancing and gymnastics. On the other hand, many cases occur in families without other members developing warts and presumably the infectivity of the virus varies. In view of the frequency of warts in general, the virus must be widely disseminated and most people must carry it on their skin from time to time without having clinical warts. The variation in susceptibility to develop warts from one person to another is probably considerable. The warm moist foot appears to be more readily involved but other factors are not understood. Trauma from splinters and nails in footwear may play a part in allowing the virus to penetrate the epidermis.

DIAGNOSIS

The individual plantar wart is well circumscribed, and the surface is hard cornified skin which does not carry the normal skin ridges and through which can often be seen red or black points which are hæmorrhages from attenuated papillæ. They are painful, particularly when squeezed from side to side. The warts are sometimes multiple in which case they may be separated by normal skin or they may join up and give a large area of wart tissue referred to as a mosaic wart.

Corns occur in sites where pressure occurs on skin overlying bone. Macerated corns, commonly between the fifth and fourth toes, due to the rubbing of bony prominences of the two toes, are more often mistaken for warts. Corns are not so well circumscribed and consist of a conical wedge of cornified skin which is more readily apparent if the top layers are pared off. Callosities are larger than corns and occur where pressure is distributed over a larger area of skin, being particularly common over the metatarsal heads and round the heel. They merge with the surrounding skin and the only difficulty in diagnosis is to decide when warts are present in addition to a callosity. Horny scars may sometimes be difficult to differentiate. A number of rarer conditions must be remembered and include epithelioma, malignant melanoma, keratoma punctata, and arsenical hyperkeratosis. The latter two conditions also involve the palms.

TREATMENT

Some plantar warts will clear spontaneously and there is often no harm in waiting for a few weeks, or initially trying one of the less drastic methods of treatment. This, combined with the cures by suggestion, must be remem-

bered in assessing results of treatment. The waiting list for hospital out-patient appointments may well be of therapeutic value in some of these patients!

Suggestion.—It seems clear that warts can be removed by suggestion. It is used in many ways, as for example, by the wart charmer, by numerous and at times bizarre 'folk lore' remedies, by clinicians (often unwittingly) and under hypnosis. Those of us who lack the 'something' which is necessary to cure by suggestion are doomed to employ the various and often laborious methods of destruction.

Formalin.—Treatment with formalin dries up the skin and wart, and a common method is to soak the area of the foot in 3 per cent. formalin for ten minutes every night. Perhaps more effective is the application of a cotton-wool swab, slightly larger than the wart, moistened with the solution and kept in place overnight by strapping. To be effective the skin must become dry and hard and, if necessary, a 5 or 6 per cent. solution can be used. If the formalin comes into contact with the skin between or under the toes, painful cracking may occur and it is worth while applying a smear of petroleum jelly round such an area before applying the formalin. The treatment often has to be continued for four to eight weeks and cures can be expected in one-third to one-half of the cases.

Occlusive strapping.—The opposite effect is sought with occlusive 'elasto-plast' which remains over the area so that the skin and wart become macerated. The patient is seen at intervals of one to two weeks and the soft warty tissue is pared away with a scalpel before fresh 'elastoplast' is applied. Again, one-third to one-half of the cases will clear in four to eight weeks.

Chemical destruction.—A number of chemicals are used to burn out warts, and include trichloracetic acid, salicylic acid, silver nitrate and nitric acid. Various techniques are advocated and usually include the regular paring down of the softened wart by the physician or chiropodist. Some cases clear quickly, probably through the suggestion effect of the treatment but the time required to burn out a wart completely by chemicals is considerable.

Podophyllin resin is often effective on genital warts but by itself has little or no action on plantar warts. If, however, the warts are softened and the horny cap reduced, podophyllin may have an effect. It has been used as a 25 per cent. suspension in liquid paraffin applied after maceration by occlusive strapping and before the new strapping is applied. It can also be used in conjunction with salicylic acid and a useful preparation formulated by Dr. L. Tulloch which we have used recently in our wart clinic is:—

Salicylic acid	75 grains	(5 g.)
Podophyllin resin	50 grains	(3.2 g.)
Lanolin, Yellow soft paraffin	in equal parts to 1 ounce	(31 g.)

This is applied every night to the wart which is then covered with waterproof 'elastoplast'. The patient is seen every one to two weeks, when the soft keratin is scraped away. If the area becomes too sore the ointment

is not applied for one day, or sometimes a few days. Occasionally podophyllin sensitizes the skin and a dermatitis ensues. One-third to one-half of the cases will clear in three to four weeks.

An injection of 2 to 10 minims (0.12 to 0.6 ml.) of 5 per cent. aqueous phenol below the wart is said to be effective, but the pain produced will be at least as much as when a local anæsthetic is injected prior to curettage.

Freezing.—Carbon dioxide snow is preferred to liquid oxygen or nitrogen as it can be applied with more pressure and seems to freeze more deeply. The 'sparklet' apparatus is quite adequate for most plantar warts, provided the stick used is slightly larger than the wart. It helps to pare down the wart and soak the area in water for five minutes before freezing. With average pressure, application is required for two to four minutes. Blisters usually develop and the smaller warts ride up with the skin of the blister which only requires snipping to remove them. With the larger warts, after snipping the blister the wart may be still attached; if so, it is as well to allow the skin to settle down for a week before either refreezing or using another method. The freezing and thawing are painful but in some cases this is preferred to an injection.

Surgical removal.—The usual method is to inject a local anæsthetic and curette the wart out. The pain of the injection is reduced if it is given slowly and beneath, rather than into, the wart tissue. It is usually possible to treat children by this method, but with many warts or a very nervous child, a general anæsthetic may be preferred. The wart is curetted out and the sides of the cavity are then scraped away until it is lined by normal-looking skin. The warts are surprisingly deep and, if not used to the procedure, the operator may just curette away the superficial horn. Bleeding can be controlled by hand pressure from the fingers round the edge of the wart. The cavity is then cauterized by pure phenol on cotton-wool wrapped round the end of a wooden applicator or by the electro-cautery. To stop bleeding later, a plug of cotton-wool is inserted in the cavity and a gauze pad firmly strapped over the top by 'elastoplast'. The cavity heals in one to two weeks and usually no scar remains. Warts should never be excised as this leads to scar formation which is often painful.

If the wart has been on the metatarsal-head pressure area, reducing the pressure by wearing a metatarsal bar for a few weeks may prevent recurrences.

Radiotherapy.—Treatment with x-rays gives good results and is safe provided care is taken in the dose. Radionecrosis has usually resulted from very large or multiple doses and in the past from inaccurate calculation or administration of the dose. This treatment does call, however, for an expensive machine and carefully trained staff, and many clinicians prefer the simpler methods.

It will be seen that there are many types of treatment for plantar warts and the one chosen will depend upon the type, size and site of the wart and the patient's circumstances. Individual clinicians get used to certain pro-

cedures and all methods are successful at times and their merits are argued. Initially I often use formalin, or the salicylic-acid-podophyllin-resin ointment with occlusive strapping as described. If these methods fail, or sometimes when the patient is first seen, the warts are curetted out. Radiotherapy is kept for cases in which there are special difficulties or when there have been recurrences after treatment.

Occasionally warts, particularly of the mosaic variety, or those embedded in callosities, continue to recur after many methods of removal have been tried and as such present a problem requiring much ingenuity and patience by all concerned.

PROPHYLAXIS

To try to reduce infection to others it has been customary to stop various activities, including the use of communal bathrooms and swimming baths. As wart virus studies are so meagre, it is impossible to be dogmatic on the advisability of such precautions, but I am one of those who consider the risk of infecting others to be exaggerated and that, once the wart is under treatment, with, for example, occlusive strapping or formalin, there is no harm in carrying on with normal activities. To reduce spread in schools it would be as well to stop gymnastics and dancing in bare feet, and the wearing of other children's gym shoes.

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NOTES AND QUERIES

Intravenous Aminophylline

QUERY (from a reader in Hong Kong).—An adult patient suffering from bronchial asthma was given an intravenous injection of aminophylline, 0.24 g. in a 10-ml. solution, over a period of three minutes. A few seconds after the injection he felt faint but recovered within about two minutes. What is the explanation of such a fainting attack? Could it be due to the sudden vasodilator effect of the drug? What is the method of management of such a fainting attack if it lasts for a longer period?

REPLY.—It is well known that patients do occasionally collapse during the intravenous injection of aminophylline. This danger is greatly minimized by the slow injection of a dilute solution such as was used in this instance. The explanation of these episodes is not clear, but they are probably caused by a transient fall in blood pressure. Aminophylline will usually increase the cardiac output and does not commonly have any prolonged hypotensive effect.

Intravenous aminophylline can cause severe vascular shock and even death in patients with idiosyncrasy. It is not impossible that the fainting attack might have been a vaso-vagal attack, such as occurs in a considerable number of susceptible people with any injection. The treatment of all such reactions is the usual symptomatic one for fainting.

HOWARD NICHOLSON, M.D., F.R.C.P.

Treatment of Azoospermia

QUERY.—What is the prognosis and treatment

for a childless married couple, who are apparently sterile? They are both aged about 33 years, and have been married for seven years. The wife is apparently normal. Examination of the husband's semen revealed the following:—

Volume: ±3 ml. pH: 8.5. Opacity and viscosity diminished. Microscopic examination: Absence of spermatozoids even after centrifugation.

There is no evidence of organic disease, past or present.

REPLY.—In assessing a case of azoospermia, the first question to be answered is whether the cause is a failure of spermatogenesis, or an obstruction in the efferent system, with no major fault in the germinal epithelium. A simple physical examination of the testes is usually sufficient to decide this; if the testes are very small and soft it is almost certain that they contain little or no germinal epithelium. If of fair or moderate size and consistence, the chances are overwhelmingly in favour of 'obstructive' azoospermia. Testicular biopsy will establish the diagnosis beyond doubt but is unlikely to teach an experienced examiner anything he does not know already.

Failure of spermatogenesis: In a case of azoospermia with small soft testes, whether the absence of spermatogenesis is congenital or due to later damage (e.g. mumps orchitis, radiation), the prognosis is hopeless from the outset.

Obstructive azoospermia: When the size and consistence of the testes suggest active germinal epithelium, or if testicular biopsy has shown the presence of mature spermatozoa, the next step should be surgical exploration. This will show the site and nature of the obstruction, and repair can be attempted immediately. The patient's history, and examination of the epididymides and vasa will have provided a reasonable forecast of what the surgeon will find, and whether or not he is likely to be able to help. For instance, with a history of gonorrhœal epididymitis, and on finding a hardened nodular epididymis, the chances are that a normal efferent system has become obstructed, and the prospects of surgical correction are good. Conversely, with no history of local disturbance and no obvious fault on palpating the epididymis, it is common to find congenital anomalies of the tail of the epididymis or lower end of the vas, and the prospects of surgical correction are minute at present. (The latter situation, incidentally, is much more common than hitherto assumed, and I have seen at least 60 such cases over the last two years.)

Generally speaking, it is fair to say that only a small proportion of azoospermic men are likely to be helped by any form of treatment.

H. A. DAVIDSON, M.R.C.S., L.R.C.P.

Thiopentone in Children

QUERY.—Should thiopentone be used for a child aged 10 years who is to be operated upon for acute appendicitis? If so, what method should be used and what special precautions should be taken before and during administration?

REPLY.—Thiopentone may be given to a child of ten years old, but care must be exercised in its administration. The injection should be given as a 2.5 per cent: solution and slowly; not more than 100 mg. should be put in at one time, and there should be a pause of at least 30 seconds before the injection is started again. Only enough should be injected to produce sleep; this will probably be about 250 mg. Thiopentone should not be used if the stomach is suspected of being full, and atropine, 1/100 grain (0.6 mg.), should be given as premedication. The method should not be used when there is respiratory obstruction or embarrassment. Particular care must be exercised in the postoperative period to ensure that a clear airway is maintained. If the child is not likely to prove cooperative during injection the method should be abandoned.

It is only fair to state that many anæsthetists do not agree with the intravenous administration of thiopentone to children.

FRANKIS T. EVANS, M.B., D.A., F.F.A. R.C.S.

Offspring of 'Mixed' Marriages

QUERY.—I have been consulted by a patient who contemplates marriage with a man whose maternal grandfather was a Jamaican negro. His grandmother and his father were both white (English). Is it possible to forecast:—

(1) The chance of a typically negro child appearing among their children or grandchildren (assuming no future mixed marriages).

(2) The proportion of more slightly coloured children to be expected from their marriage.

REPLY.—It is not to be forgotten that a negro is not merely a person with a relatively very dark skin; there are other differences, e.g. nostril shape, lip shape, hair form, which are just as characteristic of this geographical variety of mankind as is the skin colour itself. But these do not form the reasons for social discrimination. Yet it is not impossible that they, rather than the colour of the skin, are the attributes that evoke strong emotional reactions: they can be ugly; judged by the standards of beauty of many 'white' populations, the black of the skin cannot be so regarded.

It is generally agreed that the differences in respect of skin pigmentation that distinguish the 'white' from the 'black' are genetic in origin as are also those that relate to nostril and lip shape and hair form. It is also generally agreed that, in so far as skin pigmentation is concerned, there are several minor genetic factors that determine the actual 'shade' of the 'white' and

of the 'black'. The northern and southern European are both 'white' but the southern tends to be much darker than the northern. Among mulattoes there is much variation; some are relatively light, some relatively dark, and others are intermediate.

The differences in respect of skin pigmentation between the 'pure white' and the 'pure black' rest upon two, if not more, pairs of genes, probably more. These are the principal genes; as has been stated, there are others which affect the actual shade.

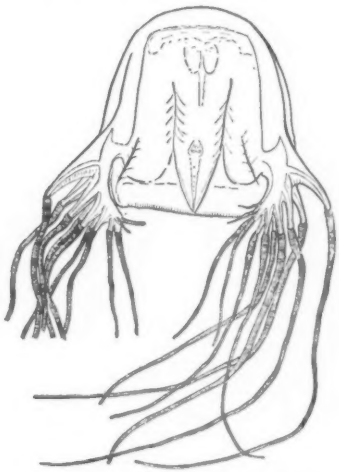
The man being considered is, in genetical terms, a 'white segregant' from an ancestral 'white' x 'black' union. His mother was a mulatto; but was she a 'light' or a 'dark', or an 'intermediate' mulatto? It is assumed that she was a light-coloured one. The man himself is assumed to be 'white' or 'near white'. His skin pigmentation would be determined very largely by the modifying genes that affect the 'shade' in the mulatto mother. If it is accepted that two principal pairs of genes are concerned, it can then safely be assumed that the proposed marriage could not produce offspring darker in respect of skin pigmentation than the darker parent. The widely held conviction that the marriage and mating of two 'white' parents can yield a 'black' child or a child far darker than either parent, has its origin, it is reasonable to postulate, in the outcome of the marriage of two very light mulattoes who in appearance were so 'near white' as to be regarded as 'whites'. No undoubted case of two individuals with pedigrees similar to those now being considered producing a 'black' child is on record. (It is assumed that the inquirer has a pedigree in which none but 'pure whites' appear.) The answer to the first question therefore is 'none'. That to the second is not so easy in the absence of a more exact knowledge of the actual 'shades' of mother and man, but the statement that there should be no child darker than the father will surely suffice. The other genetic differences relating to nose and lips, and the like, are not inherited in the same manner as are the dissimilarities in respect of skin pigmentation. They must not be forgotten when discussing the question.

F. A. E. CREW, M.D., F.R.C.P.ED., F.R.S.

Jelly-Fish Stings

DR. R. V. SOUTHCOTT, c/o South Australian Museum, Adelaide, writes: Your note on this subject, by Dr. T. Marshall, in the December 1957 issue (p. 733) sets out a mainly European viewpoint. It is stated that the jelly fish with the worst reputation for stings is the 'Portuguese man-of-war' or *Physalia*, and it is implied that this genus causes fatalities. There appears, however, to be little evidence that *Physalia* does do so, and I would appreciate any well-documented evidence to that effect.

It is probable that the jelly fish causing tropical fatalities belong actually to the group of *Cubomedusæ* or 'sea wasps'. Although these are found in all the warmer seas, it is only in the tropics that they achieve any size. They can



Chironex fleckeri, the probable cause of fatalities in northern Australian waters. (Reproduced by courtesy of the *Australian Journal of Marine and Freshwater Research*.)

be recognized by the generally square shape of the bell. Probably the most dangerous species are those with the greatest number of tentacles, which may range from a total of 4 to about 60 in different kinds. The accompanying illustration is of *Chironex fleckeri*, a species I described in 1956 (Southcott, 1956) from northern Australian waters, where it is the probable cause of a number of fatalities each summer. Such deaths may be of great rapidity—occurring even in three or four minutes. Research is going on in Australia at present into the toxins of this and other species. Whether *Chironex fleckeri* occurs elsewhere than in northern Australian waters is not known. Deaths occur also in Philippine and Malayan waters, and there the superficially similar *Chiropsalmus quadrigatus* Haeckel is blamed, on presumptive evidence. Along the West-African equatorial coastline another somewhat similar form with many tentacles occurs, known as *Chirodropus gorilla* Haeckel; yet curiously enough there appear to be no records of fatalities in that region or even severe stingings.

These *Cubomedusæ* live mostly in shallow

waters over sand, and generally the victim is stung close inshore. He may die before he can be got to the shore, or soon after. In such circumstances for practical purposes there is no treatment likely to be of value. It is hoped that an antivenene can be developed which could be used on victims who survive long enough for medical aid to be brought. At present some victims survive for an hour or two.

I would appreciate correspondence from anyone interested.

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PRACTICAL NOTES

A New Sulphonamide

SATISFACTORY results are reported by H. G. Grieble and G. G. Jackson (*New England Journal of Medicine*, January 2, 1958 **258**, 1) from the use of a new sulphonamide—sulphamethoxypyridazine ('midicel'; 'lederkyn'). This compound is readily absorbed from the alimentary tract, slowly excreted in the urine, has a low degree of acetylation and is more soluble in acid media than other sulphonamides. Its antibacterial activity is said to be comparable with that of sulphadiazine. In a series of 48 patients with urinary-tract infections, a 'favourable clinical response' was obtained in 80% of the 10 acute cases and in 24% of the 38 chronic cases. The usual dosage schedule was an initial loading dose of 2.5 g. followed by 0.5 g. daily. Children were given comparable doses calculated on a weight basis. This single daily dose of 0.5 g. maintained antibacterial concentrations of free sulphonamide in the urine and serum for prolonged periods. *E. coli* was the most responsive organism. Side-effects were observed in 6.4% of patients. Sulphonamide crystalluria was noted in one patient but 'without signs of renal toxicity'. There was no evidence of leucopenia attributable to the drug nor were any signs of chronic toxicity noted in patients who received full therapeutic doses for many weeks or months.

Anticoagulants and Cerebral Infarction

FURTHER evidence that anticoagulants should not be employed in the treatment of patients who have suffered recent cerebral infarction due to embolism is provided by W. A. Sibley and his colleagues (*American Journal of the Medical Sciences*, December 1957, **234**, 663). In a series of 36 dogs with experimentally produced cerebral infarction, results in the 18 treated with dicoumarol showed that 'hæmorrhagic cerebral infarcts in dogs may be made significantly more hæmorrhagic' by the use of this drug, and 'there is little reason to believe that hæmorrhagic infarcts in the human brain should behave differently under the influence of anticoagulant agents'. Caution is also advised in the use of anticoagulant agents in cases diagnosed clinically as cerebral thrombosis 'because of difficulties in clinical distinction between thrombotic and embolic infarction of the brain'. When a patient already under anticoagulant treatment suffers a cerebral embolus 'it would seem wise to return the clotting and prothrombin times to normal levels as soon as possible'.

Nitroglycerin in Paroxysmal Dyspnœa

'THE clinical effectiveness of sublingual administration of nitroglycerin in the relief of nocturnal dyspnœa and paroxysmal dyspnœa during the day has been so unmistakable' that J. B. Johnson and his colleagues (*New England Journal of Medicine*, December 5, 1957, **257**, 1114) 'now use this drug routinely, both in ambulatory and in hospitalized patients, for the relief of paroxysmal dyspnœa associated with insufficiency of the left ventricle'. They report that their patients 'now insist on having nitroglycerin available for use during episodes of paroxysmal dyspnœa since in most cases they obtain immediate relief from the severe retrosternal and respiratory distress'. In an investigation of the effect of the sublingual administration of nitroglycerin in doses of 0.6 and 1.2 mg. on the pulmonary-artery pressure in 10 patients with left-sided heart failure, they found that the pressure fell in nine cases during the first thirty minutes after nitroglycerin administration, and in seven of these the drop was considered significant. There was also a fall in the brachial-artery pressure, but no correlation could be demonstrated between this fall and that in pulmonary-artery pressure. None of the patients in this series has ever had any untoward nitroglycerin reactions, such as syncope.

Steroid Treatment of Tuberculous Pleural Effusion

CORTICOSTEROID treatment of patients with recently developed tuberculous pleural effusions resulted in 'dramatic' absorption of fluid without aspiration in 16 patients treated by J. Aspin and Helena O'Hara (*British Journal of Tuberculosis*

and Diseases of the Chest, January 1958, **52,** 81). With a daily dosage of 40 units of corticotrophin, or 20 mg. of prednisone, together with 1 g. of streptomycin and 300 mg. of isoniazid, it was found that 'even massive mediastinum-displacing effusions' cleared down to the line of the seventh rib anteriorly, or even farther, in a fortnight or, at most, a month, whereas in another group of 14 patients treated by aspiration, streptomycin, or 'more conservatively', it took an average of over sixty days before similar improvement took place. Cases were confined to those with 'acute recently developed pleural effusions in which a tuberculous etiology seemed to be beyond reasonable doubt', and the presence of peptic ulcer was excluded. The patient's weight, tests for sugar and albumin, and chest radiography were checked weekly. In the steroid-treated group only one minor loculation remained after treatment, and in the two patients with slight falling-in of the ribs this condition was present at the beginning of treatment. In the other group there was loculation in six cases, marked residual deformity in two, and decortication was necessary in one.

Urinary Tuberculosis

In a review of the treatment of urinary tuberculosis, R. W. Reid (*Annals of the Royal College of Surgeons of England*, January 1958, **22,** 11) expresses the view that streptomycin, PAS, and isoniazid are most efficacious in parenchymatous tuberculosis and have less effect on the established ulcero-cavernous lesion. Chemotherapy can destroy the bacilli but the tissues involved may be so damaged and distorted by fibrosis that their function will be seriously impaired. Provided renal destruction has not gone too far, a combination of streptomycin, PAS and isoniazid will sterilize the urine in the course of a few weeks, but the treatment must go on for several months or there will be a relapse. These drugs may be used together or alternately in short courses and should be continued for between three months and two years after the urine has been freed from tubercle bacilli as demonstrated by guinea-pig test, the duration of treatment being dependent upon progress. If, given adequate constitutional treatment and chemotherapy, tuberculous bacilluria does not markedly diminish or cease in the course of six to twelve weeks, more active treatment is indicated, as it is probable that the focus has become localized by fibrosis and that the drugs can no longer effectively reach the bacilli. It is useless continuing intensive chemotherapy when all the soft and simple lesions have been cleared up and a hard encapsulated focus continues to discharge into the urinary tract with all the attendant risks of spreading the infection to the bladder. At this stage active surgical treatment is required, and this should be undertaken when the patient's general resistance has been built up, but not when the blood sedimentation rate is raised.

Tuberculosis of the Knee

Details are given by F. Harwood Stevenson and his colleagues (*Tubercle*, February 1958, **39,** 1) of the results of treatment in 33 patients with tuberculosis of the knee, treated at the Royal National Orthopædic Hospital, and followed for periods varying from two to eight years. Of the 24 patients with synovial disease, eight received streptomycin only (½ to 1 g. daily), six had streptomycin and PAS (4 to 15 g. daily according to age), two had streptomycin and isoniazid (4 mg./kg. body weight in children, and 200 mg. daily in adults); and eight had all three drugs, either together or in separate courses of two drugs at a time. Intra-articular streptomycin was used in six patients—all in late adolescence or early adult life. Synovectomy was done in two patients, but was not successful as both lost over 80% of flexion. Of the nine patients with synovial and bone disease, three had streptomycin alone, three had streptomycin and PAS, and three had all three drugs. The two patients with foci in the tibial metaphysis had the abscess curetted with successful results. The final assessment was 24 'very successful' results and only five patients required arthrodesis. About half the patients obtained full range of movement, and half of the remainder retained well over 90 degrees. All the patients treated with intra-articular chemotherapy retained over 120 degrees flexion. So far there has been no evidence of reactivation in any of the patients.

Skin Complications in Tuberculous Chemotherapy

The occurrence of eczematous eruptions in tuberculous patients undergoing treatment with dihydrostreptomycin, PAS and isoniazid in various combinations is discussed by J. T. Crissey and his colleagues (*Journal of the American Medical Association*, November 23, 1957, **165,** 1526). Details are given of 37 patients in whom such eruptions occurred, resembling nummular dermatitis (12 cases), seborrhœic dermatitis (6 cases), or a combination of these (19 cases). The average age of the patients was 59 years, and the average interval between the administration of the drugs and the onset of the eruptions was eight months (ranging from two days to eighteen months). In the vast majority of cases PAS was the cause. Dihydrostreptomycin was an occasional cause but more often 'a prolonging factor'. Isoniazid

never seemed to play a part. The etiology is obscure but it is suggested that 'a disturbance in the normal bacteriological flora of the skin may underlie these eruptions'. In no instance did the eruptions clear while the administration of PAS was continued but in some cases it was possible to bring it under control by the use of wet compresses (Burow's solution) and 'mild antipruritic ointments'. If this was not sufficient, PAS was withdrawn and the other two drugs were used. If, in spite of this, the eruptions continued to spread, and chemotherapy was essential to save life, the patient was treated with chemotherapy combined with steroids—10 mg. of prednisone two to four times daily. A warning is given that patients with 'these eczematous complications are easily sensitized to topical medications'.

Intramuscular Iron

THAT 'iron given intramuscularly should essentially supplant the further use of intravenously administered iron' is the opinion of Albert B. Hagedorn (*Proceedings of the Staff Meetings of the Mayo Clinic*, December 11, 1957, **32,** 705) in a preliminary report on the use of 'imferon' in the treatment of over 50 patients with iron-deficiency anæmia, who have received 400 injections or more 'without any significant reaction either locally or systemically'. Unlike previously available parenteral preparations, 'imferon' 'appears to be free from all significant local or systemic reaction', and response is 'equal to or better than that observed with intravenous therapy'. Fewer injections are needed than when iron is given intravenously. In most cases this obviates the necessity for blood transfusion, with its attendant risk of initiating antibody responses and the transmission of homologous serum jaundice. The optimum dosage was found to be 5 ml. (250 mg.) at each injection, given simultaneously into each gluteal region. Each adult patient received a total dosage of 1000, 1,500 or 2000 mg., depending upon 'clinical evaluation of the case and the degree of hæmoglobin deficit'. Most patients had hæmoglobin values of less than 9 g. per 100 ml. of blood before starting treatment. It is emphasized that iron given intramuscularly appears to be 'poorly effective or noneffective in immobile bed patients, markedly obese patients, and patients with significant chronic infections', and that in most cases of iron-deficiency anæmia orally administered iron has proved effective and remains the treatment of choice.

Acetazolamide in Chronic Glaucoma

A DETAILED study by D. A. Campbell and his colleagues (*British Journal of Ophthalmology*, December 1957, **41,** 746) of three patients with open angle glaucoma has demonstrated the value of combined treatment with acetazolamide ('diamox') and potassium bicarbonate. The patients were selected for this study because they were unwilling to undergo any further surgical treatment and their glaucoma had ceased to be controlled adequately by either miotics or acetazolamide in frequent doses (usually 250 mg. once or twice daily). The addition of potassium bicarbonate in doses of 1 g. thrice daily 'proved surprisingly successful' in combination with one daily dose of 250 mg. of acetazolamide. Not only were the side-effects prevented but the intra-ocular pressure was controlled. Two of the patients showed no abnormal rise in intra-ocular pressure and no side-effects after three months' treatment. In the third case the dose of potassium bicarbonate had to be decreased as he was found to have a rather high level of blood potassium after two months. It is recommended that, before adopting this form of treatment, investigations should be carried out with the patient in hospital in respect of renal function, diurnal variation of the intra-ocular pressure, and the response of the patient to acetazolamide and potassium bicarbonate. Therapy with acetazolamide must be confined to patients in whom there is no abnormality of renal function, and the intra-ocular pressure and blood potassium must be estimated at regular intervals during treatment.

Umbilical Hernia in Babies

THE value of adhesive strapping in the treatment of umbilical hernia in infants has been investigated in 100 cases by J. C. Haworth (*Nursing Mirror*, January 31, 1958, **106,** iii). His major conclusions are as follows. If an umbilical hernia in a baby protrudes more than ¼ inch (6 mm.) and is kept efficiently reduced by adhesive strapping for at least four weeks, there is a much greater chance that it will have resolved by the age of 12 months than if no treatment is given. Thus, in the present series 80% of the 35 hernias which were strapped had resolved by the time the child was 12 months, compared with only 47% of the 21 cases in which strapping was not applied. No advantage is to be gained by strapping an umbilical hernia which protrudes for less than 6 mm. and possible skin irritation makes it undesirable to do so. In the series investigated by Haworth, 100% of the 16 hernias in this category which were strapped had resolved at 12 months, compared with 96% of the 28 which were left unstrapped. Of the 51 babies who had strapping applied for four weeks or longer, 13 suffered from mild skin excoriation or sepsis. Finally, the view is expressed that strapping after the age of six months is probably useless.

REVIEWS OF BOOKS

Clinical Orthopædics. Part 9. Edited by ANTHONY F. DE PALMA *et al.* Philadelphia: J. B. Lippincott Co.; London: Pitman Medical Publishing Co. Ltd., 1957. Pp. xii and 353. Illustrated. Price 60*s.*

THIS book is divided into three parts. The first deals with the 'Pathologic physiology of metabolic bone disorders' and summarizes contemporary knowledge on this obscure subject. The section consists of a series of monographs, each written by an expert. The chapter on 'Definitions, terminology and classification of metabolic bone disorders' is one of the most important and informative in the book, and has to be mastered before the rest of the first part of the book can be appreciated. The chapter on 'Multiple myeloma' is especially readable and interesting. The section devoted to conventional orthopædic problems may find more general interest. The chapter on 'The management of idiopathic scoliosis' is remarkable for the amount of lucid information given in such a small compass. Similarly, the chapter on 'Skin grafts in hand surgery' would be valuable either as *ab initio* information or as a revision for the less experienced surgeon faced with all kinds of trauma to the skin of the hand. There are several chapters on purely technical aspects of surgery, each with a message of value even though some may be well known. The last hundred pages are devoted to 'Motorist injuries and motorist safety'. This is a subject that often fails to impinge sufficiently on surgeons in this country. The approach is from many angles and a complete picture of the problems involved is presented in a way that cannot fail to interest the reader.

This volume will find its way on to the shelves of the orthopædic bibliophile and will be used for reference by less erudite colleagues.

Operative Surgery, Vol. 5. Edited by CHARLES ROB, M.C., M.CHIR., F.R.C.S., and RODNEY SMITH, M.S., F.R.C.S. London: Butterworth & Co. (Publishers) Ltd., 1957. Pp. xiii and 366. Illustrated. Price £5 10*s.*

THIS volume is concerned solely with the operations of orthopædic surgery. These operations, being largely in the nature of mechanical reconstructions employing the craft of the carpenter and the stone mason, lend themselves particularly to illustration. For this reason volume 5 is one of the most successful in the series. Nevertheless, few of the figures would lose by the addition of explanatory captions, and some of them, such as figure 6 on page 36, though well drawn, are quite meaningless without such aid. Compared with other sections most of the contributors are on the young side, some of them barely in their surgical adolescence.

Cryptorchism. By CHARLES W. CHARNY, M.D., and WILLIAM WOLGIN, M.D. London: Cassell & Co. Ltd., 1957. Pp. viii and 140. Figures 28. Price 45*s.*

THIS excellent monograph can be recommended to all interested in the problem of the erring testicle which fails to reach its correct resting place in the scrotum. A full, detailed, and critical survey of world literature and cumulative experience is presented, together with the personal views and experience of the authors. They rightly point out that in the past little attention has been paid to the end-result as regards spermatogenesis and that the only way of assessing this in unilateral cryptorchids is testicular biopsy. The danger of malignancy is considered and from this point of view an orchidectomy is to be preferred to an ineffective orchidopexy. (Incidentally, the reviewer is bound to agree that the Americanism orchiopexy is etymologically preferable to orchidopexy as claimed by the authors.) The limitations and dangers of hormone treatment are well dealt with.

The final problem as to whether the testicle fails to descend because it is subnormal or becomes subnormal because it is prevented from descending remains unanswered. A well-produced and interesting book.

Aortography: Its Application in Urological and Some other Conditions. By W. BARR STIRLING, CH.M., F.R.C.S.ED., F.R.F.P.S.G. Edinburgh: E. & S. Livingstone Ltd., 1957. Pp. vii and 292. Figures 155. Price 50*s.*

WHEN any new method of investigation is developed there is usually a wave of enthusiasm for it which is apt to be moderated when experience shows that it can be followed by complications. This has happened to some extent in connexion with aortography and the timely appearance of this book should do much to restore confidence in an investigation which can be of the utmost value.

Mr. Stirling prefers the translumbar route of injection of the aorta to the femoral, and gives full details of the equipment needed and the technique employed. He uses a pressure injector

and, although the chapter on pressure factors is reassuring, there are many who hold that manual injection is safer, while admitting that better pictures are produced by the more rapid injection given by mechanical means. 20 ml. of a 70% solution of sodium acetrizoate is used as the contrast medium; there is general agreement that this amount is adequate but there is a tendency in most places to use a solution of lower concentration as being less likely to cause renal damage. In this connexion it is surprising to find no mention of albuminuria, casts, and the occasional occurrence of anuria in an otherwise complete list of hazards and complications. The examples of specific conditions of the kidney shown by aortography are numerous and beautifully illustrated; the distinction between renal tumours and cysts is well defined, and the particular value of aortography in their differential diagnosis is emphasized. The account of hydronephrosis is excellent, and the use of aortography as a test of renal function and an index of the probable success or failure of a plastic operation in a particular case should be more widely appreciated. The limitations of the method in adrenal lesions are mentioned and there are chapters on its use in vascular disease.

The illustrations are superb, and the whole production does credit to the publishers. The book will prove of value to all urologists and to others who wish their patients to have the advantages of a precise method of investigation. It should do much to save aortography from the fate of being considered one of the more hazardous investigations.

The Function of the Ureter and Renal Pelvis. By FREDRIK KIIL, M.D. Philadelphia and London: W. B. Saunders Co., 1957. Pp. 205. Figures 73. Plates 16. Price 52*s.* 6*d.*

THIS monograph is a record of original work done on the function of the ureter, at the Institute for Experimental Research, University of Oslo, but includes a comprehensive survey of the literature, to the analysis of which much thought has been given. The book is divided into three main parts. In the first, the author reviews the various methods which have been employed in the study of the physiology of the renal pelvis and ureter, before the development of cine-radiography, and describes his own particular methods. The second part of the book gives an account of the normal physiology and illustrates the recordings at various levels. The third section deals with ureteric activity in certain pathological conditions and in pregnancy, and also with hydronephrosis.

This is a careful, well-documented study and will be of use mainly to the physiologist and experimental urologist.

Cytologic Technics for Office and Clinic. By H. E. NIEBURGS, M.D. New York and London: Grune and Stratton Inc., 1956. Pp. viii and 233. Figures 171. Price $7.75.

THE cytological method of diagnosis is now being employed on an increasing scale and it can be used with advantage in diseases of many different tissues and organs. This book gives an account of the various procedures which may be employed. Many new instruments have recently been devised for obtaining specimens for examination and these, and the ways in which they are used, are well illustrated. In addition there are illustrations, chiefly in black and white, of the various cytological pictures which may be observed. The chapters relating to gynæcology, in particular, are well done. There is a useful list of references. Although some of the illustrations are not very convincing, and a few appear to be unnecessary, this book should be helpful to those interested in cytological diagnosis in general.

Inhalation Analgesia in Childbirth. By E. H. SEWARD, D.M., F.F.A. R.C.S., D.OBST. R.C.O.G., and R. BRYCE-SMITH, D.M., F.F.A. R.C.S. Oxford: Blackwell Scientific Publications, 1957. Pp. viii and 58. Figures 11. Price 7*s.* 6*d.*

THE importance of inhalational analgesia in childbirth needs no emphasis, but the simple principles which govern its efficient production are not always appreciated. To achieve both good and safe results a knowledge of the pharmacological properties of the individual drugs and the mechanisms of the apparatus in which they are used is essential. This must be related to the progress of labour and the course of each individual pain, since the ideal of inhalational methods is to achieve analgesia suited to the intermittency of the process. On all these facts this little book is a mine of practical information, and though it is primarily written for midwives, every doctor with an obstetrical interest would do well to read it.

One Surgeon's Practice. By FREDERICK CHRISTOPHER, M.D. Philadelphia and London: W. B. Saunders Co., 1957. Pp. vii and 151. Price 28*s.*

DRAWING on his own career and long experience, Dr. Christopher deals with many aspects of the surgeon's life. He gives advice on surgical training and the conduct of a surgical practice; on fees, ethics and litigation, and on other subjects which are largely unfamiliar to British doctors.

Thus, fee-splitting and ghost surgery are virtually unknown in this country. More familiar, however, is the subject of litigation, and it is interesting to hear that legal actions against the doctor have increased tenfold in the United States since the end of the 1939-45 War.

Dr. Christopher has written frankly on the question of surgical fees. His advice is sympathetic and helpful, and not without practical value even in a country such as this where the surgeon is largely remunerated by the State. The book ends with selected letters from patients and their relatives which are intended to give the aspiring surgeon some idea of the imponderable rewards of surgery: of the sincere gratitude and devout appreciation of fellow men well served. This small book is both interesting and informative. Indeed, it would be good to see a British counterpart, by a surgeon of equal experience, written in the context of past and present-day surgical practice.

The Medical Interview. By AINSLIE MEARES, M.B., D.P.M. Springfield, Illinois: Charles C Thomas; Oxford: Blackwell Scientific Publications, 1957. Pp. x and 117. Price 25*s*.

THIS book is described as 'A Study of Clinically Significant Interpersonal Reactions', and is restricted to interviews which, presumably, do not concern organic illness, and yet are not psychiatric interviews in any real sense. It is not an easy book to read, for it is broken up into a great number of short paragraphs under such headings as 'secondary motivation: reward, success', 'defense by humility', 'abreaction aids ventilation', 'aggressive pseudo-passivity', and so on.

The author goes deeply into the causes of failure in an interview, and attributes much of t to the subtlety of extra-verbal communication and unverbalized phonation, expression and gesture. He finds it a useful exercise to keep asking himself 'What is he telling me now; What is the extra-verbal meaning of this?' But when he says, 'If we allow ourselves to become fond of a patient, the relationship becomes one of overt eroticism', he must surely forfeit the sympathy of many of his general-practitioner readers.

The Human Sum. Edited by C. H. ROLPH. London: Heinemann, 1957. Pp. vi and 232. Illustrated. Price 18*s*.

THIS book is a collection of eleven essays to mark the twenty-fifth birthday of The Family Planning Association, which started life, rather illegitimately, as the National Birth Control Council. Professor Julian Huxley writes on world population, its inexorable increase of one a second, thirty odd millions a year; hungry generations which Bertrand Russell thinks may press us into war. Mary Stocks writes a really amusing 'Story of family planning', and C. H. Rolph combines humour and erudition in 'The family as a legal notion'. Dr. A. S. Parkes of the M.R.C. preaches from a text of Nature's, 'Nothing succeeds like excess', and a very good sermon too. J. L. Hodson's 'The dark side of the street' tells of the daily tragedies of unwanted children, furtive abortions and our archaic laws. Throughout this vigorous book runs the principle of quality before quantity, and there is a constant reminder that birth control means helping the sterile to blossom as well as curtailing Nature's fulsome fecundity. The last essay, by Sherwin Bailey, 'Marriage and the family: some theological considerations', comes as an anti-climax and a reminder that the theology of one age is the anthropology of the next. The book is copiously and craftily illustrated by Alfred G. Wurmser.

NEW EDITIONS

Textbook of Medical Treatment, edited by D. M. Dunlop, M.D., F.R.C.P.ED., F.R.C.P., Sir Stanley Davidson, M.D., F.R.C.P.ED., F.R.C.P., and S. Alstead, M.D., F.R.C.P.ED., F.R.C.P., P.R.F.P.S., in its seventh edition (E. & S. Livingstone Ltd., 55*s*.) has undergone a change in editorship, and several changes in its list of contributors, but remains the best guide to therapy for the clinician. It has been thoroughly revised to bring it up to date, and a useful innovation is a chapter on 'principles of prescribing'. It is disturbing to find the long-discarded 'fl. dr.' still retained in a textbook which bears the hallmark of Scottish medicine, and there is evidence here and there of hasty proof-reading: acetazolamide is mis-spelt (p. 895), and 'radioactive' and 'radio-active' appear on the same page (p. 436). These, however, are minor criticisms of a book which represents the cream of Scottish medicine, and can be unreservedly recommended to the clinician of any age as an authoritative and up-to-date guide to medical treatment.

Recent Advances in Obstetrics and Gynæcology, by Aleck W. Bourne, M.B., F.R.C.S., F.R.C.O.G., and Leslie H. Williams, M.D., M.S., F.R.C.S., F.R.C.O.G., in its ninth edition (J. & A. Churchill Ltd., 38*s*.) has been largely rewritten. Its great advantage has always been that it provided a selective, and not a comprehensive, review of advances in the subject, and this judicial selection of advances which are of real significance continues to be the characteristic of one of the most valuable guides to sound, up-to-date obstetrics and gynæcology.

The Specialties in General Practice, by Russell L. Cecil, M.D., and Howard F. Conn, M.D., second edition (W. B. Saunders Co. Ltd., £5 12*s*.).—This excellent book undoubtedly meets a much needed demand for a standard reference book in the various specialties of those engaged wholly or partly in general practice. In preparing the second edition, Dr. Russell Cecil has had the assistance of Dr. Conn (himself engaged in general practice) as co-editor. The brief account of 'antibiotic colitis' is a useful inclusion. Perhaps the outstanding section in the book is still that on psychiatry; it is a readable section, which has been revised to include an excellent up-to-date account of reserpine, chlorpromazine and the tranquillizers, with full details of their toxic- and side-effects.

Good colour illustrations in the section on ophthalmology offer a marked contrast to the rather poor-quality illustrations in the ear, nose and throat section; and the lack of coloured illustrations detracts equally from the dermatological section. This latter section omits several standard and accepted treatments in common conditions (such as formalin baths for warts), and in contrast refers to such doubtful procedures as sympathectomy for scleroderma.

This is an established reference book, which has been well revised and is assured of a wide appeal.

Signs and Symptoms, by Cyril Mitchell MacBryde, M.D., F.A.C.P., third edition (Pitman Medical Publishing Co. Ltd., 96*s*.).—This book has become so well known in the last ten years that it seems hardly necessary to describe its general arrangement. It is, however, the arrangement which gives it special interest, as attention is concentrated on symptoms initially, and from this point are worked out conclusions about their origin. The chapter on sore tongue and sore mouth will serve as an example. Starting with the patient's complaint, the discussion is divided into local and general causes, and leads on to a valuable description of the vitamin B complex and its probable control of carbohydrate oxidation. This edition has been expanded by three new chapters on 'Growth and sex development', 'Generalized vasospasm and hypertension', and 'Lymphadenopathy and disorders of the lymphatic system'. All of these merit inclusion and will be welcomed by those who know this book already, as well as being enjoyed by new readers. 'Enjoy' is the operative word, as indeed this is an enjoyable book, but it is regrettable that its price has had to rise to 96*s*.

Industrial Toxicology, by Lawrence T. Fairhall, in its second edition (Williams & Wilkins, 80*s*.) is a most useful reference book for the toxicologist and the industrial medical officer. It is up to date, comprehensive and yet concise. References are adequate but show more skill in selection than is usual in many modern books of this type. It is not a book which the practitioner will want to possess, but it is one which he will find most useful for reference should he encounter an obscure case in which the question of occupational causation arises.

An Introduction to Medical Laboratory Technology, by F. J. Baker, F.I.M.L.T., F.I.S.T., F.R.M.S., R. E. Silverton, A.I.M.L.T., F.R.M.S., and Eveline D. Luckock, A.I.M.L.T., second edition (Butterworth & Co. (Publishers) Ltd., 35*s*.).—To compress an introduction to the technique of clinical chemistry, histology, hæmatology, bacteriology and animal-house management into just over 400 pages is no mean feat. The present authors have done so with 117 figures in the very readable text and a 14-page glossary. This edition, enlarged and much improved, is a manual for the student technician from the time he enters the clinical laboratory up to the intermediate examination of the Institute of Medical Laboratory Technology. It should serve this purpose admirably and the medical student or house officer working in the hospital laboratory will also find it a useful source of practical information.

Foundations of Nursing, by Janet S. Ross, R.G.N., R.F.N., and Kathleen J. W. Wilson, R.G.N., S.C.M., second edition (E. & S. Livingstone Ltd., 17*s*. 6*d*.).—In 1956 it was a pleasure to state that this was an excellent new book on nursing arranged to cover Part I of the syllabus of the G.N.C. for Scotland. It is equally gratifying to know that a second edition has been needed within a year as this would indicate that it has fulfilled its purpose and has been accepted by the nursing profession. The first chapter traces briefly the history of nursing; the next stresses the importance of ethical conduct, human relationships and the place of the nurse in the hospital team. The remainder of the book deals in detail with the basic principles of general nursing in a clear and comprehensive manner which should be easy for the junior nurse to understand and to remember. It is a book which can be recommended with confidence to all student nurses.

The contents of the April issue, which will contain a symposium on 'Minor Maladies of Childhood,' will be found on page A 118 at the end of the advertisement section.

Notes and Preparations see page 385
Notes from the Continent see page 389
Fifty Years Ago see page 391
Motoring Notes see page A85
Travel Notes see page A89

NOTES AND PREPARATIONS

NEW PREPARATIONS

'ANABOLEX' tablets each contain 25 mg. of androstanolone, which is described as a 'protein-anabolizing, non-virilizing hormone'. They are said to promote 'an increase of appetite and subsequent weight-gain, a sense of well-being, a return to normal of the serum albumin/globulin ratio and an increase of diuresis'. They are contraindicated in patients with prostatic carcinoma. Issued in vials containing 25 or 100 tablets for use sublingually. (Lloyd-Hamol Ltd., 11 Waterloo Place, London, S.W.1.)

'CARMERIN' tablets each contain 200 mg. of acetylcarbromal, 150 mg. of mephenesin, and 0.05 mg. of reserpine alkaloid. They are intended for daytime sedation in patients with anxiety states, neuroses, nervous dyspepsia and hypertension, and for the treatment of insomnia. Available in bottles of 50 and 300 uncoated tablets. (H. R. Napp Ltd., 3 and 4 Clements Inn, London, W.C.2.)

'MIDICEL' tablets each contain 0.5 g. of sulphamethoxypyridazine, and are 'specially indicated in the treatment of infections of the urinary tract due to *E. coli*, *Aerobacter aerogenes*, streptococci, staphylococci, gram-negative bacilli, diphtheroids and gram-positive cocci, and in some cases of Proteus infection' as well as in 'other infections due to sulpha-sensitive bacteria'. The dosage is smaller and yields effective blood levels for longer periods than other sulphonamides. Available in bottles of 12, 100 and 250 scored tablets. (Parke Davis & Co. Ltd., Hounslow, Middlesex.)

'PEN-VEE-DURAL' cored tablets consist of an outer layer containing 60 mg. (100,000 units) of phenoxymethylpenicillin (penicillin V) and an inner layer containing 150,000 units of benzathine penicillin. They provide 'in a convenient orally administered form the rapid, high initial penicillin blood levels obtained with penicillin V, supported by the prolonged and sustained levels obtained with benzathine penicillin'. Available in tubes of 12 and bottles of 100 tablets. (John Wyeth & Brother Ltd., Clifton House, Euston Road, London, N.W.1.)

'SALURIC' tablets each contain 0.5 g. of the new non-mercurial diuretic, chlorothiazide, which, when administered orally, 'is usually free from side-effects, has no known contraindications, and is effective in the treatment of œdema of all degrees of severity'. Issued in bottles of 100 and 500 scored tablets. (Merck Sharp & Dohme Ltd., Hoddesdon, Herts.)

'SPASTIPAX' tablets each contain 0.35 mg. of hyoscyamine sulphate, 0.05 mg. of atropine sulphate, 0.025 mg. of hyoscine hydrobromide and 65 mg. of amylobarbitone. They are intended for use as an 'antispasmodic with sedation in visceral spasm associated with peptic ulcer, spastic colitis, biliary colic, renal colic, vesical spasm, spasmodic dysmenorrhœa, and in Parkinsonism'. Contraindications are the same as those for belladonna alkaloids, and sensitivity to amylobarbitone. Available in packs of 30 and 250 tablets. (Clinical Products Ltd., 2 The Green, Richmond, Surrey.)

'TARCORTIN' cream contains 5% 'special coal tar extract' and 0.5% hydrocortisone, in 'a non-greasy, stainless, hydrophilic cream', and is intended for the treatment of 'all simple or refractory subacute and chronic skin affections'. It is stated that 'the two medicaments together exert a powerful synergistic action that is far more rapid, more pronounced and complete than the action of either alone'. Supplied in tubes containing 7 or 15 g. (Stafford-Miller Ltd., Hatfield, Herts.)

'TRYPTAR' ointment is intended for the treatment of 'all skin conditions attended with necrotic tissue'. Each gramme contains 5000 Armour units of trypsin (crystalline), 5000 Armour units of chymotrypsin (crystalline), 500 units of bacitracin, and 5000 units of polymyxin B sulphate, in a water-miscible base. Issued in tubes containing ½ ounce (14.2 g.). (Armour Laboratories, Hampden Park, Eastbourne, Sussex.)

ROYAL SOCIETY OF MEDICINE

THE next meeting of the Section of General Practice will be held at 8.15 p.m. on Wednesday, March 19, when the subject for discussion will be 'An Appraisal of Hypnotism in General Practice'. The speakers will be Dr. Harold Stewart, Dr. A. A. Mason and Dr. C. A. H. Watts.

FORTHCOMING CONFERENCE

THE *World Congress of Prophylactic Medicine and Social Hygiene* will be held in Merano, Italy, from October 18 to 23, 1958. Full details may be obtained from the General Secretary, VIII. Piaristengasse 41, Vienna, Austria.

BUTTERWORTH GOLD MEDAL

THE BUTTERWORTH GOLD MEDAL is awarded annually for an essay by a member or associate of the College of General Practitioners on a subject connected with general practice. The subject

for this year's essay is 'Second Opinions'. Essays, identified by motto only (with the author's name and address in a sealed envelope) and not exceeding 10,000 words, should be submitted to the chairman of the awards committee, The College of General Practitioners, 41 Cadogan Gardens, Sloane Square, London, S.W.3, not later than September 20, 1958.

NEW JOURNAL

THE *International Journal of Health Education*, the first issue of which is dated January 1958, is described as the official quarterly organ of the International Union for Health Education. The members of the editorial committee include Dr. John Burton, the medical director of the Central Council for Health Education. The annual subscription is £1. The editorial office, to which all correspondence should be addressed, is 3 rue Viollier, Geneva, Switzerland.

TETANUS WALL CHART

As a guide to procedure for the prevention of tetanus in injured persons, a wall chart giving the necessary recommendations is being distributed by Burroughs Wellcome & Co. Copies may be obtained upon application to The Wellcome Foundation Ltd., The Wellcome Building, Euston Road, London, N.W.1.

LONDON SPASTICS

IN the County of London there are 722 cases of cerebral palsy among children aged 0 to 16 years, of whom 497 are aged 5 to 14, according to a survey made by Murdoch MacGregor *et al.* (*Med. Offr*, 1957, **98**, 367). Of these 722 children, 483 were spastics, 58 were athetoid, 46 had ataxia, and 78 suffered from two or more of these types. Sixty-nine per cent. of all children, and 54% of those receiving education, were below average in intelligence. Among the children aged 5 to 14, 188 were dealt with under the Mental Deficiency Acts, 16 received home tuition, and 393 were at school—328 of them at special day or boarding schools. The view is expressed that 'with care and perseverance it would seem that work can be found for the majority of cerebral palsied school leavers, but in some cases a large number of jobs has to be tried before settled employment is reached'.

FAMILY DOCTOR CENTRE

TOWARDS the end of this year it is hoped to open a Family Doctor Centre at Livingstone House, Edinburgh (better known to the older generation of Edinburgh graduates as the Cowgate Dispensary). It will be the first centre of its kind in Britain and will offer facilities for a wide range of diagnostic procedures to about 100 family doctors. The practitioners who use the centre will continue to consult at their own surgeries, but will be enabled to meet at the Centre any of their patients who require special investigation or follow-up The diagnostic facilities will include laboratory, x-ray, and electrocardiographic equipment. A senior physician will act in an honorary capacity as medical adviser, but the investigation of cases will be done entirely by the practitioners themselves.

The conversion of the premises will cost about £25,000, and the annual upkeep is expected to be in the region of £10,000. The Nuffield Provincial Hospitals Trust has agreed to contribute £17,000 towards the capital cost and £13,000 towards the running cost during the first three years.

HOUSES FOR THE ELDERLY

IN order to assist older people to lead an independent life and enjoy a home of their own for as long as possible, local authorities should provide small, easily run, compactly designed houses which will enable older people to live on their own without risk of accidents or need for overwork, according to a circular issued by the Department of Health for Scotland. Whilst most older people wish to be housed among the general population, a small proportion of older people's houses should be provided in groups of up to thirty houses, to enable a general supervision of frailer older people. In the case of equipment, it is considered that showers are as effective as baths—and safer. The most suitable heating appliances are continuous burning, solid-fuel appliances.

GAMBLING AND INTELLIGENCE

IT is well known that subjective ideas of probability differ from predictions made using statistical laws. It is also well known that persons in general like to gamble. If they have a choice of a number of different courses of action which, on the average, will yield the same benefit, they will prefer to risk some loss in order to chance some gain, rather than to choose a course which has a certain outcome. H. C. A. Dale, of the Medical Research Council applied psychology research unit at Cambridge, has investigated the relation between these two phenomena and intelligence. (*Nature*, 1958, **181**, 364), and his conclusion is that 'intelligence determines not the hunches a man has but whether he chooses to be guided by them'.

A NEW DRUG FOR LEPROSY

A NEW drug, diphenylthiourea, is at present undergoing clinical trial in East Africa. As a result of the preliminary observations in 56 patients, according to the annual report of the East African Leprosy Research Centre for

1956-57, 'indications to date are that it is as efficient as DDS'. Equally significant is the fact that it opens up possibilities of a new series of chemical compounds in the treatment of leprosy. One of its attractive features is the apparent freedom from toxic effects, even when given in large doses.

PREVENTION OF BLINDNESS

In a memorandum issued to all practitioners providing general medical services and supplementary ophthalmic services in the National Health Service the Ministry of Health draws attention to the fact that the number of registered blind and partially sighted persons in England and Wales is rising steadily. It states that 'recent information indicates that earlier and more effective treatment would prevent the occurrence, retard the progress or alleviate the symptoms of some of the pathological conditions which endanger vision during childhood, during the years of active life and in old age'. It is considered 'disquieting to find that some 80% of persons registered as blind from cataract have had no treatment'. As 'modern methods of cataract enable the cataract to be removed as soon as vision is seriously impaired', family doctors and the medico-social services can do much by early reference for expert opinion. In the case of glaucoma, some 40% of those registered as blind from this condition have had no treatment. 'Effective treatment of this serious condition depends almost entirely upon early referral by the family doctor, since it is to him that the patient usually first reports his symptoms. . . . Ophthalmic medical practitioners and ophthalmic opticians should refer, with a view to investigation, any doubtful case seen for sight testing, particularly any patient in the susceptible age group whose visual defect is not clearly a refractive error only'.

A SAFETY MEDICINE BOTTLE

Accidental poisoning of children, especially by aspirin, is causing as much alarm in the United States as in this country. In an attempt to cope with the problem, a new preparation which is essentially a suspension of salicylamide in what is described as 'a new safety bottle' has been marketed. According to a report in the *Financial Times*, the feature of this bottle is a mushroom-shaped polyethylene valve attached to a stainless steel spring lodged under the neck. When the bottle is turned upside down the contents cannot spill and therefore any child who gets hold of it is unable to get access to the contents. When a dose is required, a calibrated dropper is inserted into the bottle. This pushes the valve aside and allows a measured dose to be obtained. It is claimed that once this dropper is removed, the valve springs back into place, making it 'difficult for even the most curious child to get at the medication'.

POLIOMYELITIS VACCINATION IN CANADA

The inoculation against poliomyelitis of every adult aged 40 and under is the aim of the Quebec Provincial Government this year.

'TRANQUILLIZING' WOLVES

Russian hunters have found a new use for barbiturates—to kill wolves. According to a recent report from Moscow, sufficient phenobarbitone is being added to bait to send any wolf that eats it into a deep sleep, when he can be readily killed.

TÆNIA KNOWS NO FRONTIERS

An interesting example of the importance of international cooperation in preventive medicine was brought out at the recent WHO seminar on veterinary public health. In the Netherlands, 4000 to 5000 patients are treated annually on account of infestation with *Tænia saginata*, which is estimated to cause a national economic loss of 1 million guilders a year. A survey showed that in 21% of the farms investigated the cattle are grazed on meadows that in winter are flooded with the waters of the Rhine and the Maas, and that untreated sewage released into these rivers in countries upstream, and in which the eggs of tapeworm persist, is in part responsible for the infection.

WHITHER MEDICINE?

'Mass-produced gas, mass-produced water, and mass-produced roads are all very well, but mass-produced social and medical services can sometimes do as much harm as good'. Dr. J. D. Kershaw, medical officer of health for Colchester, in his annual report for 1956.

PUBLICATIONS

Gassing Casualties.—A recently qualified casualty officer faced with a dramatic case of gassing with an unfamiliar substance may be in a difficult situation—and so may his patient. It is to help with this circumstance that a panel of industrial medical officers was invited by the Association of British Chemical Manufacturers to prepare this most useful book of labels which covers 47 different gases. Each label accompanies the patient to hospital and makes clear the circumstances of the accident, the first-aid treatment which has been given, and the immediate and subsequent treatments which are recommended. For doctors interested in industrial medicine the book forms a handy guide to the treatment

of gassing in general. Two clinical comments may be made. There is an old world smack about the immediate recommended treatment by inhalation of Friar's Balsam, and medical opinion is divided on the wisdom of giving a sedative cough mixture 'when necessary' to a patient whose lungs may contain secretion. The medical officer of every firm which may have a gassing accident should consider instituting this most useful system. (Association of British Chemical Manufacturers, price 5s.)

A Guide to Blood Transfusion, by R. J. Walsh and H. K. Ward.—This interesting, easily read and well-produced book was designed originally for medical students and general practitioners in Australia. It explains, concisely, the principles and practice of blood transfusion applicable to that country. Whilst most of the underlying principles will be acceptable in any country, some of the practices appropriate in a sparsely populated terrain would be out of place in Britain's 'tight little island'. However, in any country where the doctor has few clinical or laboratory facilities within easy access this book would prove most valuable. It gives sound advice on the whole field—the selection of donors, preparation of apparatus, organization of a blood bank, collection and giving of blood, the indications and choice of fluid for transfusion and the treatment of any resultant complications. (Australasian Medical Publishing Co. Ltd., Sydney, price £A1.)

Fluid Balance Without Tears or The Child's Guide to Electrolytes, by G. L. Bunton, M.CH., F.R.C.S.—In the last ten years about a dozen attempts have been made to explain the mysteries of the *milieu interieur* and its maintenance to the uninitiated. Mr. Bunton's effort is certainly the shortest and is unique in its use of Thurber-like sketches to create the impact which the mere text lacks. The author's aim in attempting to impress the house surgeon with the elements of fluid balance is commendable and if successful should pay off in lives saved. Most of the important facts necessary for rational therapy are contained within the 28 pages. They include a few with which some would differ. Is it really necessary to supply the bedridden anuric patient with 2,500 calories? Is resonium A (not Rosorium A) not far more effective by mouth than by retention enema? Is the blood pressure really raised in the acidosis due to bowel fistulæ, diarrhœa or renal failure? Apart from such doubtful points the house surgeon, after reading the book, could, with advantage to all, pass it on to his seniors. (Copies may be obtained from the author at: Private Consulting Rooms, University College Hospital, London, W.C.1, price 4*s*. 6*d*.)

Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death is based on the recommendations of the Seventh Revision Conference, 1955, and adopted by the Ninth World Health Assembly under the WHO Nomenclature Regulations. It is published in two volumes, volume II consisting of an alphabetical index. (H.M. Stationery Office, price 35*s*. for the two volumes.)

The Truth About Cancer, by Charles S. Cameron, M.D.—Charles Cameron, an eminent American surgeon, has written this book to give the lay public reliable information on the nature, causes, diagnosis and treatment of cancer. If laymen wish to read about cancer, and many of them do, they will find here a clear factual account of all that is known about the disease. The facts are accurate, the explanations are clear, the style is the conversational man-to-man approach of the American commentator, the general tone is honest yet reassuring. The appeal throughout is to common sense, and as such it can do much to dispel the fear and bewilderment that drive the faint-hearted and the half-educated to the all too prevalent cancer quack. (Hutchinson Medical Publications, price 30*s*.)

Expert Committee on Insecticides, Seventh Report, WHO Technical Report Series No. 125, deals with the resistance of insects to insecticides, the disinsectization of aircraft, aerosol formulations, and test procedures for aerosols and aerosol dispensers. (H.M. Stationery Office, price 1*s*. 9*d*.)

Beyond Today, by Rolf Thomassen, is the autobiography of a Norwegian spastic who has achieved fame in his own country as an artist. (Robert Hale Ltd., price 12*s*. 6*d*.)

A Classified Bibliography of Gerontology and Geriatrics, by Nathan W. Shock, which was reviewed in the January issue (p. 152), has now been published in this country by the Oxford University Press, price £6.

CORRIGENDUM.—'Primoteston depot' is made by Schering A.G., Berlin, and not by British Schering Ltd. as stated on pp 18-19 of our January issue.

CURRENT THERAPEUTICS INDEX

THE cumulative index to articles which have appeared in the 'Current Therapeutics' series from 1948 to 1957 inclusive is now available and will be sent post free to all readers who require a copy.

NOTES FROM THE CONTINENT

A European Newsletter

GERMANY

Influenza.—The epidemic of so-called Asian influenza reached Germany in August. As in other countries, it has been characterized by its high infectivity and relatively benign course, but the complications have at times given rise to anxiety. In the majority of cases the clinical features were a relatively high temperature, severe retrobulbar headache, sometimes associated with stiffness of the neck, and marked pharyngeal congestion. The main complication has been pneumonic consolidation of the lungs but, on occasion, activation of an old tuberculous process and signs suggestive of cerebral œdema have been disturbing features. The highest incidence of complications was among older patients. In treatment, two proprietary preparations have been said to be of value: 'fiobrol', which is a combination of caffeine and a pyrazole derivative, and 'irgapyrin'. Little enthusiasm has been evinced so far for inoculation as a prophylactic measure.

Oral antidiabetic drugs.—Much work continues to be reported on these preparations. In view of the importance of vascular complications as a cause of death in diabetes mellitus, attention has been drawn to the adverse effects of hypoglycæmia on the vascular system, and that one of the advantages of the new oral preparations in elderly diabetics may be that they are less likely to induce hypoglycæmia than insulin. It has also been suggested that the so-called insulin-resistant type of diabetes may be the form of the disease for which oral antidiabetic therapy is most satisfactory.

Dietary fat and arteriosclerosis.—Much interest is being evinced in the possibility of controlling arteriosclerosis by restricting the intake of fat. G. Schettler, for instance, recommends a diet of 1,500 to 2000 calories, containing only 50 g. of fat, including that used in cooking. The bulk of the fat should be taken in the form of those containing unsaturated fatty acids, such as linseed oil, maize oil, and sunflower oil. Cocoanut oil and palm-oil, which are rich in saturated fatty acids, should be avoided.

Obesity.—The management of obesity is a perennial problem. F. Bahner has recently stressed the importance of avoiding any definite sensation of hunger when planning a slimming diet. This is done by maintaining as high a content as possible of protein in the diet, and by the simultaneous administration of 'appetite-abolishing drugs'. He cautions, however, that these drugs are not without their dangers, and their administration must be carefully supervised. He recommends a daily intake of 1,500 calories, and that this should be maintained for six months to a year. An interesting point that he makes is that a 'psychic trigger' may be a precipitating factor in the onset of obesity. Emphasis is laid upon the necessity for appreciating the demands that a slimming regime may make upon the intelligence, will-power and cooperation of the patient.

Treatment of ganglia.—The injection treatment of ganglia with a combination of hyaluronidase and prednisone (or prednisolone) has been recommended by C. E. Dejen. Hyaluronidase not only promotes the absorption of the steroid but also reduces the viscosity of the contents of the ganglion. The treatment is carried out by first aspirating a small amount of the contents of the ganglion and then injecting hyaluronidase. This reduces the viscosity of the remaining contents which can then be aspirated. Twenty minutes later, 25 mg. of prednisone, or 10 mg. of prednisolone, are injected. It is claimed that the results with this form of treatment are more satisfactory than with any other form.

Oxytetracycline in renal disease.—Attention has been drawn to the fact that, in the treatment of infections of the genito-urinary tract, one of the advantages of oxytetracycline is that it is effective in both acid and alkaline urine. This means that there is no need to worry about the pH of the urine. In a detailed investigation of the absorption and excretion of oxytetracycline in patients with renal disease it has been shown that, following a single dose of 100 mg. of the antibiotic, the serum concentration was independent of renal function. In the presence of severe renal dysfunction the urinary concentration of the drug is low but, because of the high serum concentration, a long-term therapeutic effect is obtained.

'Emergency rations.'—In view of the uncertainty of the international situation, increasing attention is being devoted to the problem of ensuring a sufficiency of food for the population in the event of what is euphemistically described as 'an emergency'. It has been noted with interest that Switzerland is considering plans to ensure that there should be a two-months' reserve of food available, allowing the following amounts per person for two months: 2 kg. of fats, 3 kg. of sugar, 2 kg. of rice, and 1.5 kg. of flour. This would provide 770 calories a day.

Holland is considering a similar plan, but one which allows for 2000 calories a day. Another Swiss suggestion which has been noted is that each citizen should be provided with a lead-encased package containing 6 kg. of basic foods, vitamins, tea, coffee, bandages, and candles.

Medical practice.—The profession is noting with concern the tendency to expand the system of social security in the direction of the 'total welfare state'. Much interest has been aroused by the publication of a comparison of the fees of doctors and of veterinary surgeons. The latter receives 4 DM for an ordinary consultation involving a large animal and 3 DM for a dog or a cat, whilst a doctor receives 3.20 DM for a consultation which includes an examination of the urine for sugar and albumin. For an emergency consultation the veterinary surgeon receives 8 DM for a large animal and 6 DM for a dog or cat. In similar circumstances a doctor receives 4 DM.

ITALY

Influenza vaccination.—The current Italian view on influenza vaccination has been ably summarized by V. Puntoni. Vaccination is unquestionably the most effective means of preventing the spread of the disease. Although it does not necessarily provide complete protection, it undoubtedly reduces the severity of the infection and also the incidence of complications. On the other hand, at the present moment it is not a practicable proposition to introduce mass vaccination against influenza, as can be done in the case of smallpox and diphtheria.

Osteoporosis.—Osteoporosis is a condition which deserves much more attention than it has hitherto received, according to Dr. C. Campana, of Rome, who describes it as the only ageing process which is capable of complete reversal. He classifies it into three types: (a) Endocrine osteoporosis, which may be post-menopausal, associated with acromegaly, primary or secondary cortico-adrenalism, or treatment with cortisone or its derivatives. He includes senile osteoporosis in this type, even though it is admitted that other factors play a part in the complex pathogenesis of this condition. (b) Osteoporosis from disuse. (c) Osteoporosis due to malnutrition. His recommended treatment consists of a high-protein diet, vitamin D, calcium lactate and ascorbic acid. Œstrogens and testosterone are also of value, but equally good results are obtained from the use of *nor*-androsterolone-phenylpropionate. This is a steroid analogous to testosterone but without the virilizing action of the latter.

Pangamic acid.—Several reports have appeared on the pharmacology and therapeutic value of pangamic acid. It appears to play an important part in the enzymatic processes of the body, to inhibit neuromuscular transmission and to protect the liver against the toxic effects of ammonium salts and carbon tetrachloride. E. Cuguddu and E. Dispenna have investigated the action of an arginine salt of pangamic acid ('cardio-pangamina') in 24 patients with coronary disease, including angina pectoris and myocardial infarction. It produced a slight fall in the erythrocyte sedimentation rate and a lowering of the ratio of the beta-alpha lipoproteins. No toxic effects were observed.

Impressive results have been recorded from the use of pangamic acid in the treatment of cirrhosis of the liver and alcoholic hepatitis. Its use is followed by a marked diuresis, and this has also been recorded in patients with congestive heart failure accompanied by 'cardiac cirrhosis'. The diuresis is accompanied by an increased excretion of creatine and creatinine and there is some evidence suggestive of a stimulating action on the cortico-adrenal system. The therapeutic potentialities of this preparation are evidenced by the reports that it gives symptomatic relief in rheumatic conditions and in patients with cerebral arteriosclerosis.

Corticosteroids and antibodies.—C. F. Colucci and his colleagues have investigated the now well-recognized adverse effect of the corticosteroids on antibody formation. They report that this action is much more marked with corticotrophin than with prednisolone and the other synthetic cortisone-like preparations. The practical implication of this is that in cases in which it is particularly important to avoid this 'anti-antibody' action, the use of corticotrophin should be avoided if at all possible. These workers also stress that the cortisone-like preparations have no action whatsoever on what they describe as 'passive immunity': e.g. they have no effect on the phagocytic activities of the reticulo-endothelial system.

Conferences.—Among the various conferences that have recently been held in Italy, one of the most interesting was the National Congress of Medical and Surgical Societies, at which Professor Ruffo, of Turin, read a paper on 'The Late Results of "Endocrine-Surgical" Treatment of Malignant Disease'. His major conclusion was that in the case of carcinoma of the prostate and of the breast either bilateral orchidectomy, or bilateral ovariectomy (with or without adrenalectomy), resulted in subjective and objective improvement in about 50% of cases.

THE PRACTITIONER

Fifty Years Ago

'The Lord shall smite thee with a consumption, and with a fever, and with an inflammation.'—*Deuteronomy*, 28, 22.

MARCH 1908

DR. TIMBRELL BULSTRODE'S report to the Local Government Board on various 'aspects of the tuberculosis question' inspires the editorial pen to comment with a blend of irony and 'purple patches': 'The conclusion . . . that the white plague is gradually being stayed, gratifying as it is, can hardly be so described. Even if statistics had not been available, and medical observation did not count, one could have inferred the diminishing prevalence of the disease in real life from its diminishing prevalence in imaginative and biographical literature. The poetry and fiction of the beginning of the nineteenth century is sicklied o'er with the pale cast of consumption. The hectic sentiment of the "Queen of the May" is, perhaps, its most conspicuous manifestation; but it also abounds in the early-Victorian novel. To send the heroine into a "decline" is there the normal method of striking the note of pathos; and a study of the biographies of the same period shows how faithfully fiction, in this respect, echoed fact. One takes up Life after Life, and finds one promising career after another brought to a premature and melancholy termination by the mysterious and pathetic malady. The sad cases of Henry Kirke White, of John Sterling, of Richard Hurrell Froude are typically representative of an immense group of cases. They can be paralleled nowadays, of course, but the parallels are comparatively few; while, in fiction, the heroine who wastes away from consumption is almost as rare as her sister in early-Victorian romance whose tragedy was to lose her beauty from a disfiguring attack of small-pox'.

Sir John F. H. Broadbent, Bt, D.M., F.R.C.P. (1865-1946)

'An interesting problem in literary clinics is discussed in Mr. Francis Gribble's new book *George Sand and her Lovers*', 'Notes by the Way' continue. 'What was the nature of the illness through which the novelist nursed Alfred de Musset when she was living with him at Venice? Dr. Pagello . . . writes: "I diagnosed a nervous tyhpoid fever". That of course is nonsense. Nervous typhoid fever is a complication unknown to medicine, and typhoid fever itself was unknown to medicine in the year 1834 . . . the alleged diagnosis was really an afterthought; and the record of the symptoms indicates that the afterthought was due, not to increased pathological knowledge but to a desire to protect the poet's reputation by tampering with the truth. "When", as Mr. Gribble writes, "we find the delirious patient seeing 'phantoms' round his bed, needing to be held down by two strong men, warned by his doctor during his convalescence to avoid strong drink, suspected of obtaining it surreptitiously, and relapsing, we know pretty well what to think". What we feel compelled to think is, of course, that the disorder from which Musset was suffering was delirium tremens . . . The fact . . . may perhaps in some measure explain the facility with which George Sand transferred her affections from the sufferer to his medical attendant'. A voluminous writer of shrewd insight and mordant wit, Francis Henry Gribble (1862-1946) also published *Madame de Staël and her Lovers* (1907).

The first of the 'Original Communications,' 'The Aortic Incompetence of later Life', is by Sir John F. H. Broadbent, Bt, D.M., F.R.C.P., Physician to Outpatients, St. Mary's Hospital, and Assistant Physician to the London Fever Hospital: 'The question as to the use of digitalis in aortic incompetence has been much debated. In cases due to degenerative change, it is seldom called for, as the blood-pressure is usually high, and the regurgitation inconsiderable. Even when the incompetence appears to be giving rise to cardiac embarrassment, the object of treatment will be rather to relieve the left ventricle by

lowering the blood-pressure, than to attempt to stimulate it. If, however, compensation has completely broken down, and mitral incompetence is present, with engorgement of the lungs and back working, so that the work of compensation falls on the right ventricle, digitalis may sometimes prove of service in stimulating and reinforcing the embarrassed right ventricle. It is, however, not always beneficial even in these cases'. Son of the distinguished Victorian physician, Sir William Henry Broadbent, Sir John Francis Harpin Broadbent was dean of St. Mary's Hospital Medical School from 1910 to 1920 and was elected physician to the hospital in 1913. His book 'Heart Disease', written in collaboration with his father (1897), contains his classic description of adherent pericardium.

E. Stanmore Bishop, F.R.C.S., Surgeon, Ancoats Hospital, Manchester, in his article 'Appendicitis' states that he has recently questioned all the medical men to whom he has had access 'as to their experience and opinions with reference to this complaint. . . . And the combined result appears to be this: there exists, at present, a widespread belief that in appendicitis we have an extremely dangerous and treacherous complaint, the course of which cannot be predicted in any given instance; that the most simple may have, without warning of any kind, a fatal ending; that medicine and nursing are alike powerless against it; that, when once abdominal pain, becoming localised in the right lower quadrant, vomiting, and rise of temperature occur, there is no safety for the patient, or equanimity of mind for the surgeon, until that abdomen has been opened and the appendix removed; that at any moment . . . gangrene or perforation may occur, and the whole abdominal cavity be flooded with pus, or other intensely poisonous material. Every case should, therefore, be operated upon as soon as seen, should, as it were, be shot on sight'. Against this view Bishop enters 'a modest, but not the less firm, protest'.

T. P. Legg, M.S., F.R.C.S., Assistant Surgeon, Royal Free Hospital, discusses 'The So-Called Adenomata of the Palate'; H. T. Hicks, F.R.C.S., of Derby, writes on 'Rupture of the Genital Canal during Labour'; Arthur Edmunds, M.S., F.R.C.S., Surgeon to the Great Northern Central Hospital, describes 'A New Method of Intestinal Anastomosis, Suitable for Cases of Gangrenous Intussusception'; and A. W. Sikes, M.D., F.R.C.S., of King's College, London, reviews 'Some Recent Work on Gout'.

W. R. B.

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